Pottsville
Free Public Library
REFERENCE
Pa.
case
Class 622

[illegible]

[illegible]

by

James C. Rettie

NORTHEASTERN FOREST EXPERIMENT STATION

NORTHEASTERN FOREST EXPERIMENT STATION*

Philadelphia, Pa.

Hardy L. Shirley, Director

* * * *

DIVISION OF FOREST ECONOMICS

Frank A. Ineson, Chief

Anthracite Forest Survey

Kingston Branch Post Office, Wilkes-Barre, Pa.

Miles J. Ferree, Assistant Forester

Anthracite Forest Region is a convenient name for 15 counties, shown on the map on the back of this publication, which contain or surround the hard-coal deposits of Pennsylvania. The forests of this region are now badly depleted. But preliminary estimates indicate that under good management they might, in time, furnish most of the forest products and services the region requires.

---

* In cooperation with the University of Pennsylvania

THE POPULATION AND EMPLOYMENT OUTLOOK
FOR THE ANTHRACITE REGION OF PENNSYLVANIA

Contents

Introduction and Summary of Findings 1

Analytical Breakdown into three Groups of Counties 2

Migration: 1930-1940 and 1940-1943 4

Calculation of the Future Populations: 1945, 1950, 1960 6

Estimate of the Labor Force: 1945, 1950, 1960 9

The Prospect for Employment: 1945, 1950 12

Conclusions 20

Appendix - Methods used in the calculation of future population 22

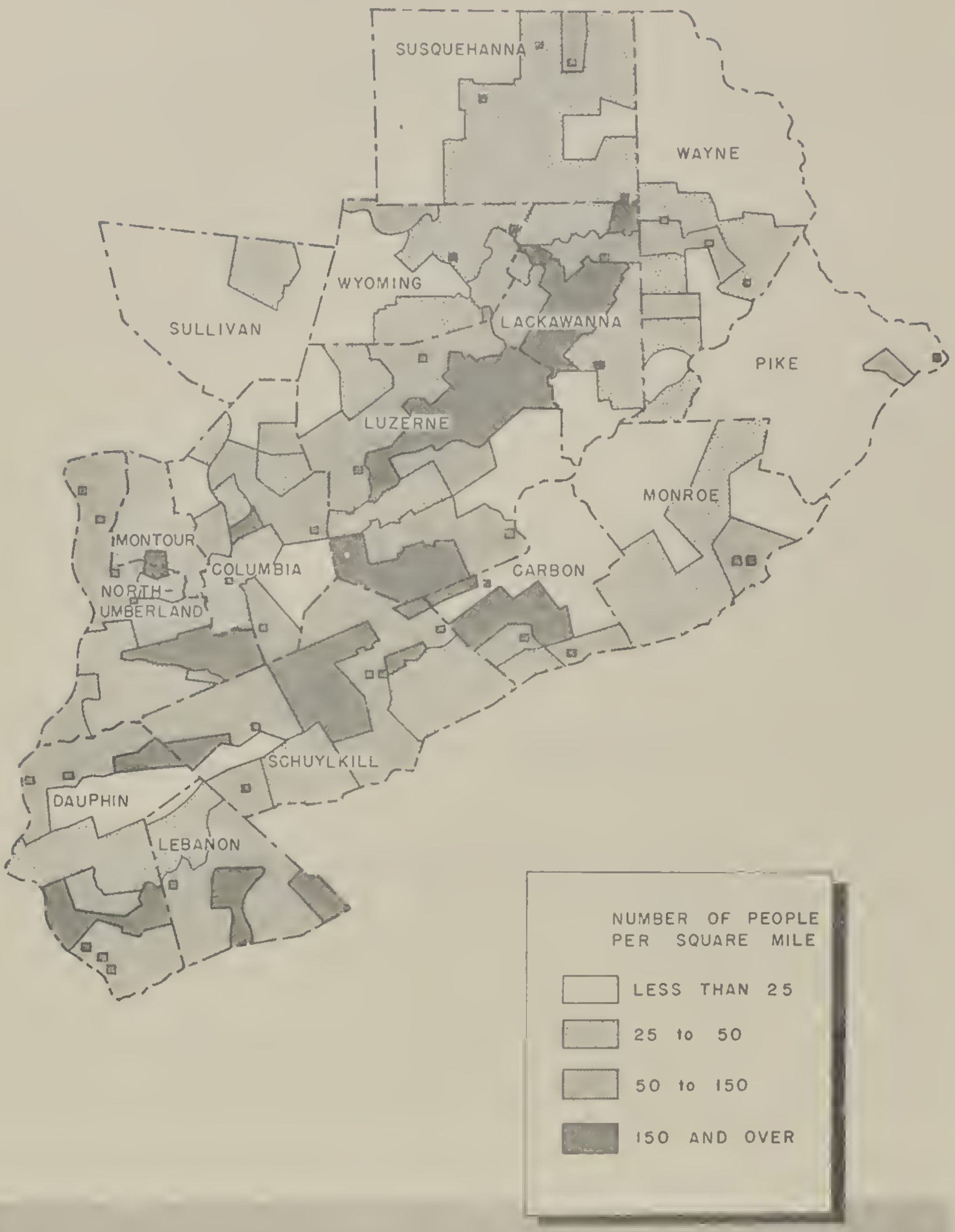


Figure I POPULATION DISTRIBUTION in the ANTHRACITE REGION - 1940

BASED ON POPULATION DENSITY MAP - BUREAU of the CENSUS

THE POPULATION AND EMPLOYMENT OUTLOOK FOR THE ANTHRACITE REGION OF PENNSYLVANIA

By James C. Rettie*

INTRODUCTION AND SUMMARY OF FINDINGS

Throughout the 1930's unemployment was widespread and chronic in the Anthracite Region of Pennsylvania. In 1939 the concern of the local people led to a Congressional appropriation for a survey of the potential contribution of forests to the alleviation of this problem and to the permanent economy of the area. Unemployment has disappeared because of the war, but the question arises. "Will there again be a scarcity of jobs after the war?"

This study is an appraisal of the population and employment situation which has developed since 1940 and of the reemployment problem which will confront the Anthracite Region as war demobilization unfolds. Because the situation in this area clearly calls for serious concern by many agencies and for planning and action far beyond the scope of forest management or the forest industries, it has been decided that the results of this employment outlook analysis should be released prior to the forthcoming report on the forest situation. Stated in the briefest possible terms, the findings of the present study are as follows:

Since 1924 coal output has dropped from 85 million tons to about 60 million. Employment in the mines dropped from 158,000 to less than 100,000 in 1940 and still further to about 80,000 in 1944. Oil, bituminous coal, coke and gas have captured a considerable share of the fuel markets once held by anthracite. Only a moderate recapture of these lost markets can be expected.

In 1940, after ten years of very serious unemployment in the six principal coal producing counties and an outward migration of 99,000 persons, there were still 145,000 persons (30 percent of the labor force) seeking employment or being supported on public emergency work projects. In the seven surrounding counties to the east and west, 20 percent of the labor force was out of work. In the two counties to the south, nearly 13 percent of the labor force was unemployed. The population distribution for the entire region as of 1940 is indicated by the map shown in Figure I.

In the six principal coal producing counties, which constitute the main problem, it is known that unemployment has temporarily disappeared. About 113,000 young men and women have entered the armed forces. Another 74,000 workers have gone elsewhere to employment in war industries. The coming-of-age of new workers, increased employment of women and older men and longer working hours have made it possible for these six counties to supply this huge force to the military and to war industry, and at the same time increase their own production and employment. There are probably 20,000 more persons at work now than were employed in 1940.

---

*Chief, Forest Utilization Service. Northeastern Forest Experiment Station. Acknowledgement is made to John Buttrick, for aid in compiling the information used in this report.

But what of the post-war readjustment period - say 1945 to 1950? Calculating from the available data and assuming that the total peace-time armed forces of the United States will require not more than 2 million; that war losses including those totally disabled will not exceed 3 percent of the number now in service; that not more than one-half of the war industry migrants will return; that employment within the region in mining, manufacturing and service occupations will hold wartime gains and recover wartime losses; there still looms the discomforting prospect of 100,000 persons without jobs in these six counties. Elsewhere in the region the outlook is more favorable but there is nothing to indicate that the outer areas can absorb any large proportion of the excess labor that may be available in the coal producing areas.

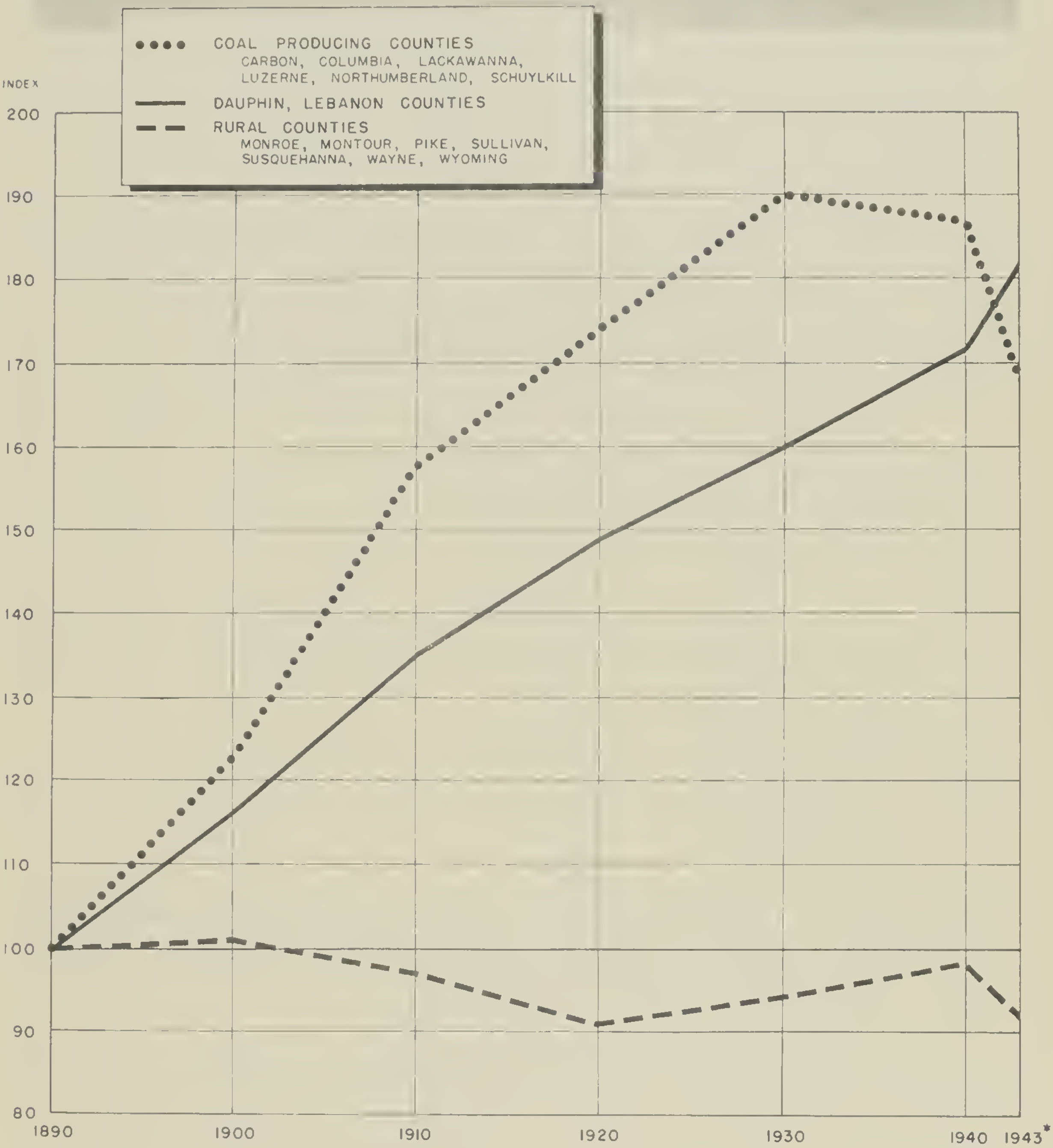
ANALYTICAL BREAKDOWN INTO THREE GROUPS OF COUNTIES

In order to deal with the total reemployment problem in realistic terms it has seemed advisable to subdivide the fifteen counties which are covered by the forest survey into three groups according to the dominant feature of their economy. The first and most important of these groups consists of the six principal coal producing counties situated, more or less, in the heart of the region. In order of their importance from the standpoint of coal production, these are: Luzerne, Schuylkill, Lackawanna, Northumberland, Carbon, and Columbia. A small amount of anthracite coal is mined in four other counties but in none of these does coal mining rank as a major occupation. Adjacent to the principal coal producing area and forming an inverted "U" around the eastern, northern, and western sides, are seven counties which are quite strongly tied to the mining economy. In these, agriculture and its related activities provide the chief source of gainful employment. A large part of the market for the produce is in the nearby coal mining communities. This fringe area, hereafter referred to as the "rural counties", supplies the mines with various wood materials -- lumber, props, and lagging. The rural counties, in order from east to west, are Monroe, Pike, Wayne, Susquehanna, Wyoming, Sullivan, and Montour. On the southern end of the coal producing area and also linked to it in a considerable degree are Dauphin and Lebanon counties. Both of these contain coal measures which may in time be operated on a large scale. At present, however, metals manufacturing is the dominant industrial activity.

The inherent differences in the basic economy of these three groups of counties are evident in the curve of population changes covering the period from 1890 to 1943 as shown in Figure II. The six principal coal producing counties experienced a very rapid increase of

Figure II POPULATION TRENDS 1890-1943

1890 = 100



*Bureau of the Census estimate adjusted to credit all persons serving in the armed forces to their respective home counties population between 1890 and 1910 and a further consistent increase up to the end of the 1920's. Between 1930 and 1940 there was a decline in the total population of the area -- indicating a heavy out-migration. Since 1940 this outward movement has been greatly accentuated. The rural counties show a very different population trend. Here the loss of population began soon after 1900 and continued until after the first World War. Between 1920 and 1940 there was a moderate increase. World War II has induced another exodus. The industrialized counties of Dauphin and Lebanon show a very even and sustained population increase throughout the entire period with accelerated growth since 1940.

MIGRATION 1930-1940 AND 1940-1943

Census data on the total population when considered without taking into account the natural increase which has occurred during a given period, often do not reveal more than a small part of a population shift. This is definitely the case with respect to the six principal coal producing counties in the ten years from 1930 to 1940. The following data indicate what actually happened:

	Coal producing counties	Rural counties	Dauphin-Lebanon counties
Population in 1930	1,231,698	135,528	232,334
Excess of births over deaths 1930-1939[1]	78,535	5,187	11,482
Total	1,310,233	140,715	243,816
Population as reported by 1940 census	1,211,127	140,753	250,051
Apparent net migration - outward; + inward	- 99,106	+ 38	+ 6,235

Something like 99,000 persons left the six coal producing counties in the decade 1930-1940. There was practically no net movement either out of or into the seven rural counties. Dauphin and Lebanon counties received about 6,000 persons from elsewhere.

Two independent estimates of the population in each county of Pennsylvania in 1943 are available. One of these, as of November 1, 1943, was made by the federal Bureau of the Census on the basis of registrations for War Ration Book Four[2]. In this estimate those persons now absent in the armed forces were, of course, not included in the count. It is, in fact, an estimate of the civilian population. The other estimate, as of August 1, 1943, was made by the Pennsylvania State Planning Board[3/]. It was based upon the annual school census and the number of births and deaths reported to the State's Bureau of Vital Statistics. In this estimate the persons serving in the armed forces are thus credited to their respective home counties. When the Bureau of the Census estimate is adjusted by adding the number of persons now serving in the armed forces, it shows a substantially larger out-migration from the six principal coal producing counties and a larger in-migration for Dauphin and Lebanon counties than is indicated by the State estimate. For the rural counties the two estimates come out almost exactly the same. The fact that the persons most likely to migrate in search of war industry jobs are the young unmarried persons and young couples without children explains why an estimate based on the school census would underestimate the migration[4/].

---

[1] From the records of the Bureau of Vital Statistics, Pennsylvania State Department of Health

[2] U. S. Bureau of the Census; Estimated Civilian Population of the United States by Counties, November 1, 1943. Series P-44 No. 3, February 15, 1944

The net losses and gains of civilian population according to each of the two estimates are shown below:

	Coal producing counties	Rural counties	Dauphin-Lebanon counties
Population 1940	1,211,127	140,753	250,051
Bureau of the Census estimate of civilian population	975,703	122,965	241,633
Persons in armed forces[5/]	113,246	9,310	23,035
Total	1,088,949	132,275	264,668
Net change on basis of Bureau of the Census estimate	- 122,178	- 8,478	+14,617
Net change on basis of Planning Board estimate	- 90,107	- 8,475	+10,475

[3/] Pennsylvania State Planning Board: Release dated August 12, 1943.

[4/] The fact that the two estimates for outward migration from the rural counties come out to the same figure suggests that this movement has consisted almost entirely of families. This would seem reasonable since it is unlikely that a wife and children can continue to operate a farm after the husband has gone. The younger men have stayed because occupational deferments are cancelled when they leave agriculture.

[5/] Information supplied by the State Director of Selective Service shows

Both of these estimates were made in 1943. The population movements which they reveal certainly went on for some time longer. The minimum rounded figures for the total wartime movement which will be used in subsequent analyses are: for the coal producing counties, out-migration of 124,000; for the rural counties, out-migration of 9,000; for Dauphin and Lebanon counties, in-migration of 15,000.

CALCULATION OF THE FUTURE POPULATION, 1945, 1950, 1960

Calculations of the size of the population which may be expected in the Anthracite Region during the next fifteen years are greatly complicated by the unpredictable factor of migration. The fact that somewhere between 15 and 20 percent of the civilian population of the coal producing area has left during the past decade and a half, and that another 10 percent is now away fighting, creates a highly abnormal situation. In all this movement, a very large proportion has been made up of the younger people. This can be expected to have a profound effect upon the rate of natural increase. War losses and the inevitable decision of some men and women to locate elsewhere after discharge from the armed forces will further deplete the younger age groups. The virtual failure of the Anthracite Region to secure any new and large war industries coupled with the heavy unemployment which prevailed through the 1930's makes the prospect of any compensating in-migration of young persons very slight.

---

that as of August 31, 1944 the number of men inducted into the armed forces through Selective Service, including voluntary enlistments subsequent to registration, were as follows: coal producing counties, 104,659: rural counties, 9,006; Dauphin and Lebanon counties, 21,150. Men in all the services who had enlisted prior to Selective Service registration in October 1940 represented 2.2 percent of the United States total male labor force. Assuming that this same percentage applied in the Anthracite Region and that nine out of every ten of these men are still in service, the numbers to be added are: coal producing counties, 7,247; rural counties, 190; Dauphin and Lebanon counties, 1,523. Women serving in the armed forces at the end of 1944 will number about 143.000 or 1.2 percent of the female labor force as of 1940. On this proportional basis the number from the Anthracite Region will be: coal producing counties, 1,340; rural counties, 190, Dauphin-Lebanon, 362.

The population and employment forecasts which have been made involve three steps. The first is a calculation of total population in 1945, 1950 and 1960 based on the 1940 census by applying the birth rates and mortality rates which prevailed in 1939-1941[6]. The second step is an estimate of the labor force with adjustments to take into account the demobilization of the armed forces and of war industry. The third step is an estimate of the industrial distribution of the employed labor force in 1945 and in 1950. The methods used in making these estimates are described in the Appendix.

If consideration of the effects of migration is, for the moment, deferred, and only the natural increase which could have been expected on the basis of the birth and mortality rates for the period around 1940 is considered, the following results are obtained:

TOTAL POPULATION

Year	Coal producing counties	Rural counties	Dauphin-Lebanon counties
1940	1,211,127	140,753	250,051
1945	1,250,718	144,045	255,746
1950	1,290,976	146,698	262,162
1955	1,325,223	149,436	263,581
1960	1,346,681	151,672	264,163
Natural increase 1940-1960	135,554	10,919	14,112
	11.2%	7.8%	5.6%

Much more important, however, from the standpoint of employment than the rate of increase of the total population will be the rapid change in its age composition. This is made evident by comparing the age distribution in 1940 with the age distribution as it would be in 1960 even without migration[7]. The results of this comparison follow:

---

[6] The procedure here used is that which has been extensively employed by Warren J. Thompson and P. K. Whelpton of the Scripps Foundation for Research in Population Problems. War has a temporary effect upon the birth rate and has caused erratic changes in the Anthracite Region. The rates used, however, are believed to represent the level which can be expected to prevail for some time.

	1940	1960	Net change	
			Number	Percent
Coal producing counties				
Under 15	309,558	288,456	- 21,102	- 6.8
15 - 40	525,181	511,713	- 13,468	- 2.6
40 - 65	307,937	417,367	+ 109,430	+ 35.5
65 and over	68,451	129,145	+ 60,694	+ 88.7
Rural counties				
Under 15	34,685	35,325	+ 640	+ 1.8
15 - 40	53,098	56,578	+ 3,480	+ 6.6
40 - 65	39,032	42,783	+ 3,751	+ 9.6
65 and over	13,938	16,985	+ 3,047	+ 21.9
Dauphin-Lebanon counties				
Under 15	57,162	54,709	- 2,453	- 4.3
15 - 40	103,237	94,656	- 8,581	- 8.3
40 - 65	70,188	85,360	+ 15,172	+ 21.6
65 and over	19,464	29,439	+ 9,945	+ 51.1

With the exception of the rural counties which contain only 10 percent of the population, the Anthracite Region will, in all probability, have fewer persons under 40 years of age in 1960 than it had in 1940. The number of persons beyond 65 years of age will have more than doubled[8].

These conditions will be greatly accentuated by the effects of the war. The strength of the United States postwar armed forces will probably be not less than 2,000,000 or 17 percent of present strength[9]. The Anthracite Region will, no doubt, provide its proportionate quota.

7/ Assuming current birth and death rates but not migration or war losses.

8/ This trend is, of course, not unique to the coal producing counties. It will occur in all the urbanized areas in the country.

9/ See E. E. Hagen and N. B. Kirkpatrick, "The National Output at Full Employment in 1950", American Economic Review, September, 1944, p 482.

Several attempts have been made by organizations [illegible] to determine what proportion of the persons now working away from their own home county in war industry can be expected to remain where they now are[10]. The results indicate that from 40 to 50 percent do not want to return to their former home community. The heavy and prolonged unemployment which prevailed in the six coal producing counties in the 1930's makes it seem more likely that not more than 50 percent of the persons now engaged in war industry employment will return. The combined effect of these influences will greatly reduce the labor force in the anthracite region after the war. This is, in part, a fortunate circumstance for a region which has suffered so greatly from excessive unemployment in recent years. It is not so fortunate, however, from the standpoint of the quality of the labor force which will be left as there will be an undue proportion of older people who are less adaptable to new jobs and new industries.

ESTIMATE OF THE LABOR FORCE - 1945, 1950, 1960

The labor force estimate was made in two steps. The first was an estimate of the expected size of the labor force if there were no migration subsequent to 1940. The second involved adjustments which took migration into account.

The primary labor force estimate was made on the basis of the number of persons between 14 and 65 in 1940 and the number that would be expected in those same age brackets in 1945, 1950 and 1960.[11] In 1940 the labor force of the coal producing counties comprised 56.9 percent of all persons between 14 and 65. The corresponding percentage for the rural counties was 51.2 and for Lehigh-Lebanon counties [illegible][12]. These percentages were increased for 1945 to take into account the current labor shortage conditions which have increased the employment of women and older men. The percentages were lowered somewhat by 1950 to allow for return of some working women to full-time home duties and for increased retirement of older men.

---

[10] One of these was made by the Kaiser Company in its three large shipyards in Portland, Oregon, and Vancouver, Washington.

[11] From the estimates above described.

[12] Farmers' wives and unpaid family workers are not included in the labor force as defined by the Bureau of the Census. This accounts for the lower percentage in the rural counties.

The percentages are further reduced by 1960 to allow for increased school attendance beyond the age of 15 and for a further increase of retirements. The results of the procedure follow:

	1940[13]	1945[14]	1950[14]	1960[14]
Coal producing counties				
Population ages 15-65	833,118	895,240	922,873	929,070
Percent in labor force	56.9	60.0	58.0	53.0
Labor force	474,082	537,144	535,266	492,407
Rural counties				
Population ages 15-65	92,130	96,359	97,960	99,362
Percent in labor force	55.2	58.0	56.0	54.0
Labor force	50,892	55,889	54,858	53,656
Dauphin-Lebanon counties				
Population ages 15-65	173,425	179,653	181,509	180,016
Percent in labor force	61.3	65.0	63.0	60.0
Labor force	106,296	116,774	114,351	108,010

Adjustments of these labor force data to take into account those persons who are absent in the armed forces and in war industry can be made with fair precision insofar as 1945 is concerned. For 1950 and 1960, it is necessary to make arbitrary judgments as to how many of the persons now in the armed services and in war industries will return.

If by 1950 the armed forces of the United States are cut down to 17 percent of their present size, it is fair to suppose that 17 percent of the number now in the services from the Anthracite Region will be in the peacetime forces. Total casualties at the end of February 1945 stood at approximately 840,000, of which 181,000 were dead[15]. Even under the most fortunate conditions, it seems probable that the total of casualties before the end of the war will reach 1,200,000 or more, of which 250,000 will be dead and probably another 100,000 disabled[16]. These losses would represent about 3 percent of the number now in service. It seems very likely that postwar enlistments plus the minimum war casualties will add up to 20 percent of the number of persons now in the armed forces. Some of those discharged will, no doubt, decide to settle elsewhere than in their home counties, but we have no basis for an estimate of the number who will do so.

---

[13] From the Bureau of the Census.

[14] Primary estimate without adjustment for migration and war losses.

[15] As reported by Secretary of War Stimson, March 15, 1945. The figures for deaths do not include other deaths which will later be reported from among those now "missing in action".

In the population which has moved to take war industry employment the proportion of workers is certainly much larger than it is for the population as a whole. Certainly not less than 60 percent were labor force people. It seems probable that not more than half of those who have gone from the coal producing counties and from the rural counties to war industry employment will have returned by 1950 and that the remainder will stay away permanently.

The sustained growth of population in past years, coupled with a well diversified economy adjacent to Philadelphia and other densely populated areas, gives reason to believe that least 60 percent of the labor force which has entered Dauphin and Lebanon counties since 1940 may stay permanently.

Applying these conclusions in a further analysis of the data developed above, the following results are obtained:

	1945	1950	1960
Coal producing counties			
Estimated potential labor force	537,144	535,266	492,407
Depletion to the armed forces	113,246	22,649	60,000
Depletion to war industry	74,400	37,200	
Estimated available labor force	349,498	475,417	432,407
Rural counties			
Estimated potential labor force	55,889	54,858	53,656
Depletion to the armed forces	9,310	1,862	4,500
Depletion to war industry	5,400	2,700	
Estimated available labor force	41,179	50,296	49,156
Dauphin-Lebanon counties			
Estimated potential labor force	116,774	114,351	108,010
Depletion to the armed forces	23,035	4,607	800
Gain attributable to war industry	9,000	5,400	
Estimated available labor force	102,739	115,144	108,810

---

[16] A recent estimate of war losses (dead and permanently disabled) by 1950 is 500,000. This may occur if the war should continue into 1946. See E. E. Hagen and N. B. Kirkpatrick, "The National Output at Full Employment in 1950", American Economic Review, September, 1944.

The final upshot of all these estimates is this: (a) Sometime between 1945 and 1950 about 127,800 people who will need gainful employment may want to return to the six coal producing counties. Of these about 90,600 will be the men and women mustered out of the armed forces and about 37,200 will be workers returning from war industry employment[17]. (b) To the rural counties there may be a return of 7,400 from the armed services and possibly 2,700 from the war industry. (c) Dauphin and Lebanon counties will be due to receive back about 18,500 from the armed forces and may lose about 3,600 who have come in since 1940 to work in war industry.

THE PROSPECT FOR EMPLOYMENT 1945-1950

What is the prospect that these persons (116,500 from the armed forces and 36,300 from war production industry) will be able to find employment when they return to the Anthracite Region in the period between 1945 and 1950? Can the economic system of the region be expected to absorb as many workers as this?

The answer to these questions will, of course, depend very largely upon the general condition of the national economy. With a high level of production throughout the nation in the postwar period, all regional problems will be simplified. In certain areas, however, and the Anthracite Region is one of these, there will be very acute reemployment problems even under the most favorable national conditions. The fact that there were in April, 1940, no less than 145,000 persons in the six coal producing counties who were either seeking work or dependent upon public emergency employment[18] cannot be neglected when looking ahead to postwar conditions. This huge bloc of persons (30 percent of the labor force) was out of work largely as a result of the long-term decline of employment in anthracite mining[19]. In 1943 these mines were producing about 20 percent more coal than in 1940 with about 15 percent fewer employees[20]. Part of this increased production has been due to full-time work as against the part time employment which was all too common during the 1930's 21/. The rest is due to increased hours per day and, possibly, some improvement in output per worker 22/. It is almost certain that the 1944 level of anthracite coal production could be maintained after the war with somewhat fewer employees than were in the industry in 1940 providing the persons so employed worked on a full-time basis 23/.

---

[17] This assumes that only one-half of the workers who have left since 1940 will return. The actual number will depend very greatly upon the employment conditions in the communities where they now are.

[18] As reported by the Bureau of the Census, 1940.

[19] See Penna. State Dept. of Mines: Fourteen Year Study of Anthracite, by Counties. April 15, 1943. See also Federal Anthracite Coal Commission: Economic Conditions in the Anthracite Coal Regions. 77th Congress, 2nd Session. House Document 709, April 21, 1942.

[20] See U. S. Dept. of Commerce: Monthly Survey of Current Business, coal mining, anthracite.

Realistic analysis of the employment prospects of the postwar period must not rest upon factors applicable to the overall economy which existed in 1940 and the economy that exists today. It is therefore necessary to consider the industrial distribution of the labor force as it was in 1940, as it is today, and as it may be in 1950. This has been done for each of the three groups of counties in the Anthracite Region in the tables and figures which follow.

While it is impossible to claim any great accuracy for the 1950 estimates, the figures for 1940 are probably not in error more than ± 10 percent. It will be noted that the estimates for 1950 assume the maintenance of wartime increases in the textile industries and also in the metals manufacturing industries. It is also taken for granted that agriculture will support a few more persons in 1950 than it did in 1940, and that the same condition will prevail in construction. There has been a deliberate effort to be as optimistic as reason will permit. One cannot avoid, however, the final conclusion that about 100,000 persons in the six coal producing counties may be without jobs by 1950. This is indeed a very grave prospect and one which demands the strongest kind of remedial program.

The employment outlook for the labor force in the rural counties is far better than in the mining area. Here the unemployed in 1940 numbered only 20 percent of the labor force as against the 30 percent which prevailed in the coal production counties. The agriculture of this area shows no serious decline. The forest resources can, without question, support more people than it did in 1940. In Wayne, Pike and Monroe counties there should be an increasing development of

---

21/ The average number of days worked per worker in 1940 was 187 per year. See Fourteen Year Study of Anthracite.

22/ See U. S. Department of Labor, Bureau of Labor Statistics: Productivity and Unit Labor Costs in Selected Mining Industries, 1935-1943. May 1944, page 3.

23/ On the basis of the 40 hour, five day week, full time employment implies between 231 and 261 days of employment, depending on vacation.

COAL PRODUCING COUNTIES

Industrial distribution of the labor force 1940
Estimates for 1945 and 1950. Labor force in prospect 1960

	1940*	1945	1950	1960
Available labor force	474,082	349,500	475,400	432,400
Employment	329,656	349,500	375,000	
Mining	88,873	78,000***	85,000	
Textiles and apparel mfg.	34,246	38,000#	40,000	
Iron, steel, and other metals mfg.	6,401	22,000#	22,000	
Machinery, transport equipment mfg.	4,837			
Agriculture	11,381**	10,300	13,000	
Food and kindred products mfg.	7,557	7,700	7,800	
Forestry, forest products mfg.	3,434**	3,400	3,600	
All other mfg.	10,646	11,600	11,600	
Construction	10,208	6,900	12,000	
Total: Commodity producing	177,573	177,000	195,000	
Transportation	19,786	21,000	22,000	
Trade and service	132,287	151,500	158,000	
Total: Transport, trade, service	152,073	172,500	180,000	
Seeking employment and on public emergency work	144,926	nil	100,400	

---

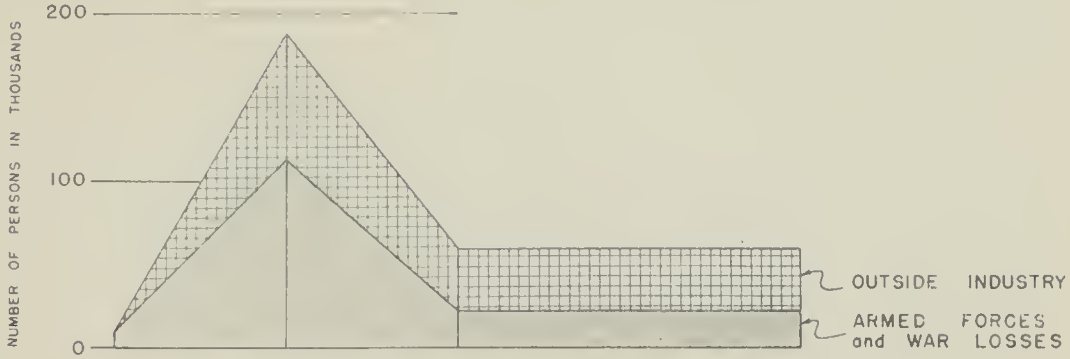
* From the Bureau of the Census, 1940.

** Adjusted to take into account partial coverage by the Census of woods employment and small wood working establishments.

*** Based on monthly index of employment in anthracite coal mining as reported by U. S. Department of Commerce: Survey of Current Business.

# Based on data for 1942 reported by Pennsylvania State Dept. of Internal Affairs: Industrial Directory of the Commonwealth of Pennsylvania.

LOSS TO THE ARMED FORCES AND OUTSIDE INDUSTRY



LABOR FORCE Past, Present, and Future

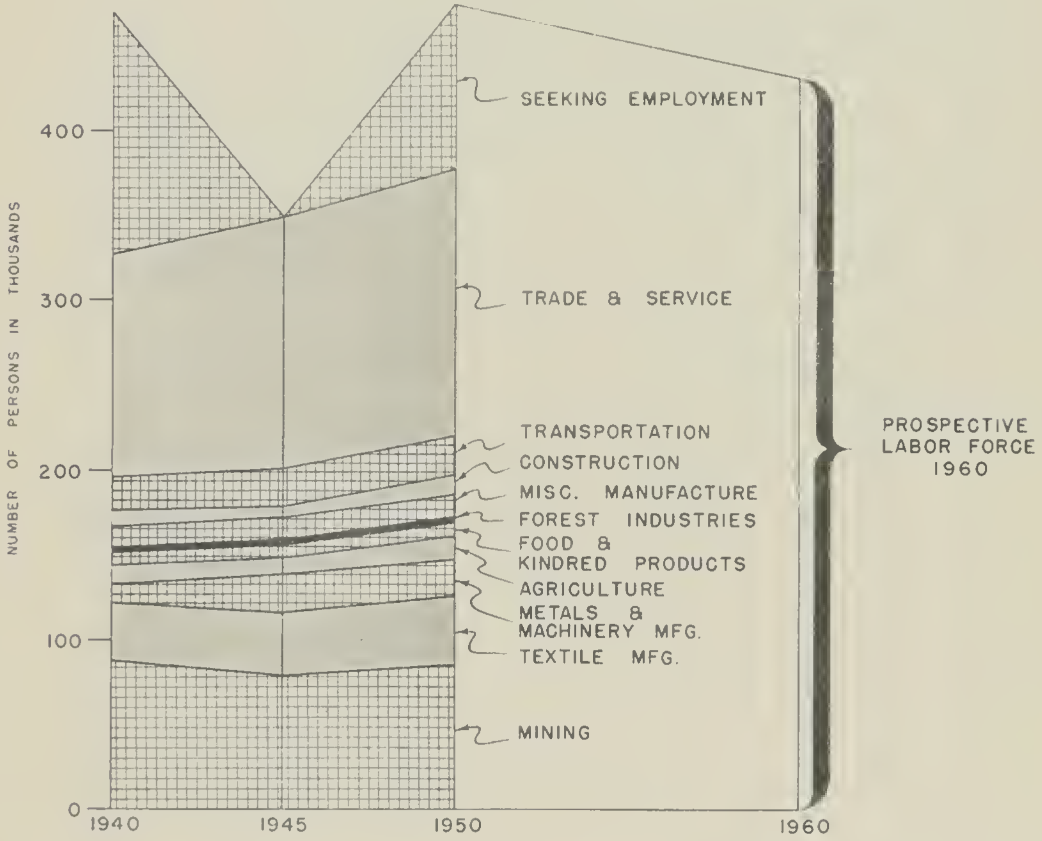


Figure III COAL PRODUCING COUNTIES

Industrial distribution of the labor force — 1940
With estimates for 1945 and 1950
And the prospective labor force — 1960

recreational services to meet the demands of the nearby heavily populated areas of New Jersey and New York City. The following employment outlook is based on statistical analysis of the 1940 employment pattern.

RURAL COUNTIES[24]

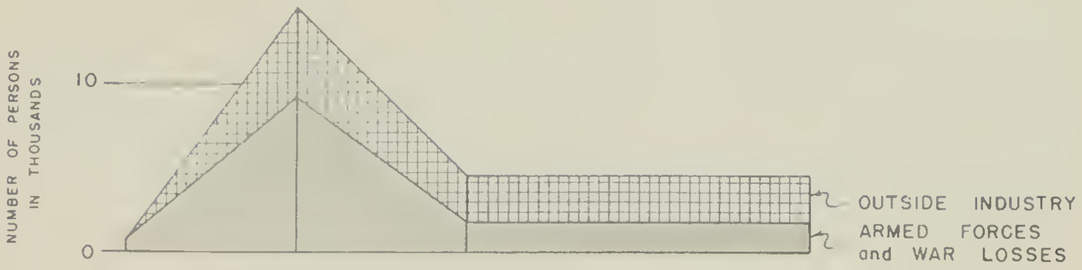
Industrial distribution of the labor force 1940
Estimates for 1945 and 1950. Labor force in prospect 1960

	1940	1945	1950	1960
Available labor force	50,892	41,200	50,300	49,200
Employment	40,545	41,200	48,000	
Agriculture	10,777	10,000	11,000	
Food and kindred products mfg.	586	650	700	
Textiles and apparel mfg.	2,556	3,400	3,000	
Iron, steel, and other metals mfg.	1,005	1,500	1,200	
Mining	982	900	800	
Forestry, forest products industries	2,273	2,500	3,000	
All other mfg.	2,033	2,200	2,100	
Construction	2,353	1,600	2,500	
Total: Commodity producing	22,565	22,750	24,300	
Transportation	2,243	2,000	3,000	
Trade and service	15,737	16,450	20,700	
Total: Transport, trade, service	17,980	18,450	23,700	
Seeking employment and on public emergency employment	10,350	nil	2,300	

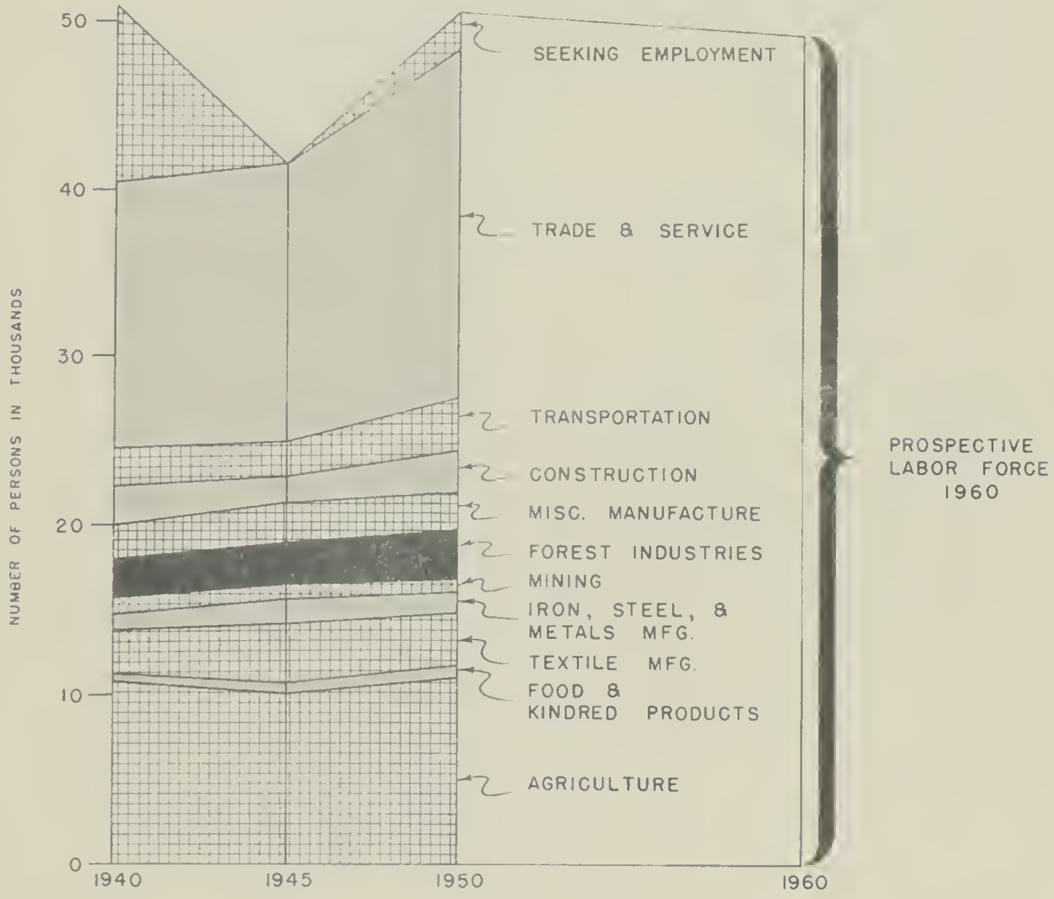
The estimate for 1950 is admittedly a hopeful one but still within reason. It shows that there might be some 2,300 persons without jobs This number is, however, only 4.5 percent of the total labor force and well within the margin of error that exists in the estimate for 1945. It seems clear that with a generally favorable national situation any unemployment problem that is likely to develop in the rural counties will be entirely manageable. A forest improvement program, by itself, could provide employment for 2,000 additional workers.

---

[24] Explanatory footnotes to previous table apply to this one also.



LOSS TO THE ARMED FORCES AND OUTSIDE INDUSTRY



LABOR FORCE Past, Present, and Future

Figure IV RURAL COUNTIES

Industrial distribution of the labor force — 1940
With estimates for 1945 and 1950
And the prospective labor force — 1960

The outlook for Dauphin and Lebanon counties is not so good as for the rural area which has just been considered. Here the number of persons without jobs in 1940 numbered 13 percent of the labor force[25/]. This area has had the benefit of war industry employment. Some reduction of employment in these industries between 1945 and 1950 will be offset by a compensating out-migration of war industry workers. In our estimates it has been assumed that this group of departing workers may not exceed 40 percent of those who have come in since 1940. The estimates of labor force distribution for Dauphin and Lebanon counties are as follows:

DAUPHIN AND LEBANON COUNTIES[26/]

Industrial distribution of the labor force 1940
Estimates for 1945 and 1950. Prospective labor force 1960

	1940	1945	1950	1960
Available labor force	106,296	102,700	115,100	108,800
Employment	92,547	102,700	104,300	
Iron, steel, and other metals mfg.	10,333	18,000	16,000	
Textiles and apparel mfg.	7,309	8,300	7,500	
Mining	2,177	1,500	2,000	
Machinery, transport equipment mfg.	1,024	1,700	1,600	
Leather and leather products	3,038	3,600	3,400	
Agriculture	5,231	5,000	5,600	
Food and kindred products mfg.	5,294	5,600	5,800	
Forestry, forest products industries	1,137	1,200	1,250	
All other manufacturing	2,619	2,900	2,700	
Construction	4,200	2,100	5,000	
Total: Commodity producing	42,351	49,900	50,850	
Transportation	5,924	6,500	6,750	
Trade and service	44,272	46,300	46,700	
Total: Transport, trade, and service	50,196	52,800	53,450	
Seeking employment and on public emergency work	13,748	nil	10,800	

[25/] Compared with 30 percent in the coal producing counties and 20 percent in the rural counties.

[26/] Explanatory footnotes to coal counties table apply to this also.

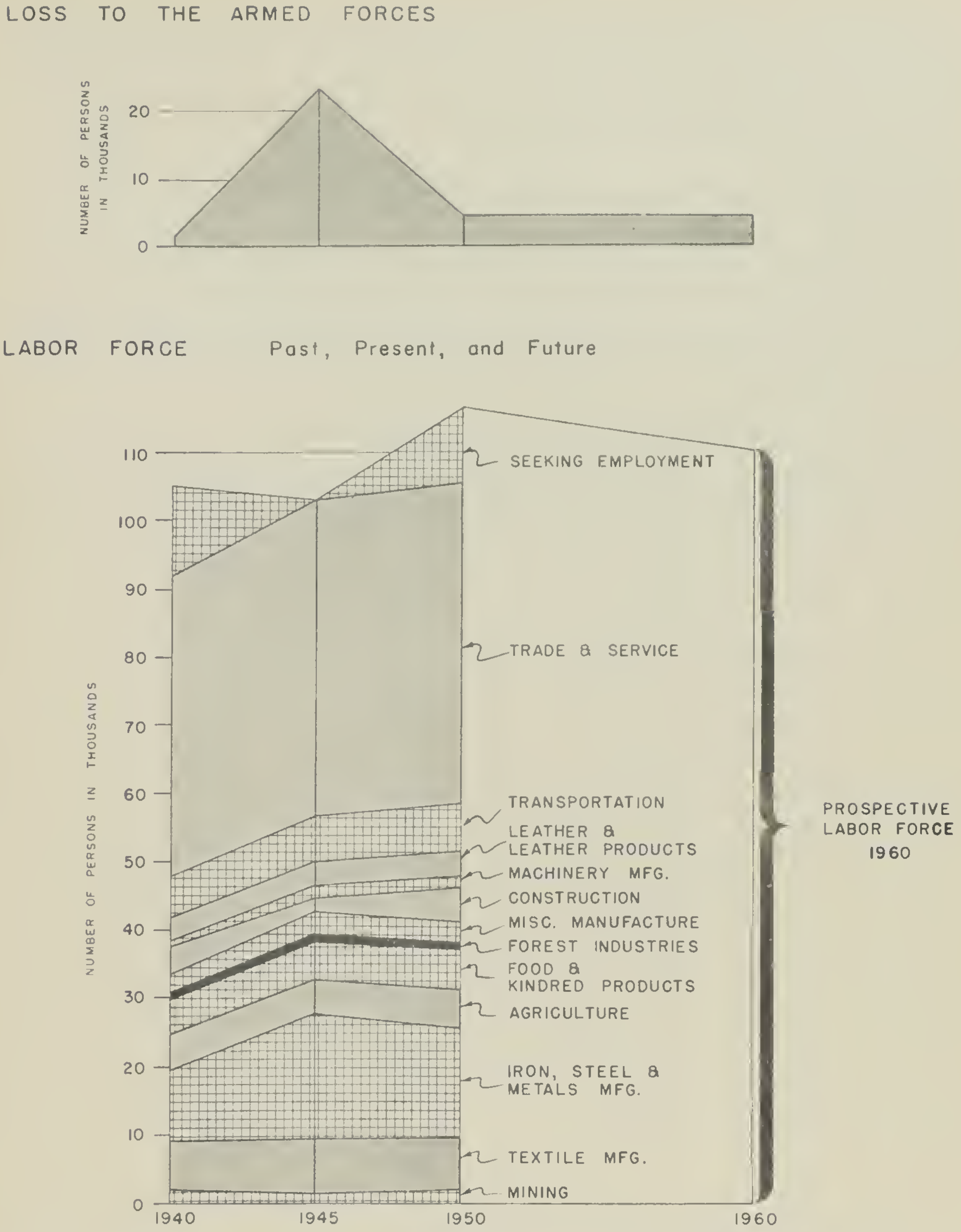


Figure V DAUPHIN AND LEBANON COUNTIES

Industrial distribution of the labor force – 1940
With estimates for 1945 and 1950
And the prospective labor force – 1960

If the economic system of the nation as a whole is functioning at a high level of employment in 1950, it seems entirely possible that the available labor force in Dauphin and Lebanon counties could be employed in existing industries. The estimate of a 10,800 deficiency in number of jobs, however, points to a need for concern even in this economically diversified area.

CONCLUSIONS

It is not possible nor desirable in this study to embark upon an analysis of the total economy of the Anthracite Region. It has been shown, however, that unless the re-employment problem is tackled in a comprehensive way and almost immediately, there will surely be a return of large-scale chronic unemployment in the principal coal producing communities.

This is a prospect which neither the nation nor the region can anticipate with indifference. There must be vigorous and concerted effort by industry and by government to avert so costly and so tragic a situation. The Federal Anthracite Commission reported to the Congress in 1942 that approximately $330,000,000 had been expended for various forms of unemployment relief in the previous ten years[27]. This amount far exceeds the total value of anthracite coal produced in any one year[28]. Obviously, here is a regional problem which will not solve itself. If still further large relief expenditures are to be avoided, there must be an alternative program which will lead to the reconstruction of the basic economy of the area. This should certainly include the lowering of mining and coal transportation costs to place anthracite in a better competitive position, the provision of technical aid to the anthracite mining industry so that part of its lost markets may be recaptured, and the development of new uses for anthracite. The Congress has authorized the establishment of a federal laboratory for the study of possibilities for increased use of anthracite, but as yet no appropriation has been made to initiate the work. The reconstruction program will certainly require the development of new manufacturing industries wherever feasible to take up the slack of employment due to depletion of the mines. In the Carbondale-Scranton area and in the vicinity of Hazleton the reserve of coal is even now nearly gone. In some cases it will be necessary to provide for the relocation of population which would otherwise be stranded.

27/ Federal Anthracite Commission: Economic Conditions in the Anthracite Coal Regions. House Document No. 709, 77th Congress, 2nd Sess., Apr. 1942.

28/ And, incidentally, the expenditures for relief also exceed the total taxable valuation ($328,000,000) of Luzerne, the principal coal producing county. See Pennsylvania State Association of County Commissioners: The County Commissioner Sept. 1944 Page 2.

In the total job of economic reconstruction, the forest resource can play a major role in the whole rural area. At the present time about 7,000 persons are employed in forest industries in the six coal producing counties and in the nine surrounding counties. But the forest resources are in very poor condition. With good forest management they could eventually be built up to support employment for 30,000. A region-wide rehabilitation program to achieve this end could provide employment for about 5,000 persons for about five years. Since the Anthracite Region is adjacent to one of the largest and best wood-consuming markets of the world, this program is economically justifiable in the long run. At the same time it would contribute to the solution of what is bound to be a serious unemployment problem in the near future.

It should be noted, however, that this contribution is a small one. 5,000 persons is but a small proportion of those who may be needing new employment opportunities. The situation clearly calls for vigorous and resolute action on the part of industry and of government, local, state and federal.

APPENDIX

METHODS USED FOR ESTIMATING FUTURE POPULATION

The birth rate

Examination of the vital statistics for the counties of the Anthracite Region reveals, as would be expected, that the rural counties have a birth rate that is much higher than that of the urbanized coal producing counties and also higher than the rate which prevails in Dauphin and Lebanon counties. Since age distribution of the female population has a marked influence upon the number of children who will be born in any particular population, it is necessary to work out the birth rate in terms of five-year age groups between the lower and upper limits of the child-bearing period -- ages 15 to 44. Not having such data available for the three groups of counties under study, it was necessary to adjust the reported total number of births to a women-age-group distribution pattern similar to that which prevailed for the Middle Atlantic region in 1940. The rates which resulted from this adjustment are as follows:

Births per year per thousand women by five-year age groups

Age group	Middle Atlantic Region, 1940[a]	Coal producing counties[b]	Rural counties[c]	Dauphin-Lebanon counties[d]
15-19	24.6	27	40	27
20-24	99.4	102	134	105
25-29	110.8	112	130	116
30-34	75.6	76	88	80
35-39	36.5	37	49	38
40-44	10.5	11	17	12
Total	358.2	367	458	378
Rate per 1,000 women 15-44	59.7	61.1	76.3	63.0

These one-year birth rates, in order to shorten computations, were converted by a smoth-curve method to the equivalent five-year rate.

---

a/ National Resources Planning Board: Estimates of the Future Population of the United States 1940-2000. page 16.

b/ The fact that approximately 10 percent of the population of the six coal producing counties moved away in the 1930's makes the average for that period too high for purposes of forecasting. The rate here given is based on the average number of births in the period 1940-1943. Even this may be too high.

c/ Average for the period 1930-1939.

d/ Ibid.

Influences which tend to defer the marriage of young women, such as prolonged schooling and perhaps office work, are not especially strong in the Anthracite Region. The higher birth rates shown for the lower age brackets are believed to be justified even though confirming statistical evidence is not available.

Mortality rates

Life tables for the population of the Commonwealth of Pennsylvania for any period later than 1926-1931 have not been published. The improvements in life prolongation attained since that time make it seem unwise to base survival ratio tables for the period 1940-1960 on these old tables. As an alternative to using the out-of-date State life table, the United States life table for native white males and females 1939-1941 was used. Abridged five-year age group survival ratio tables were prepared and adjusted by smooth-curve method to the mortality for each of the three groups of counties as reported by the State Bureau of Vital Statistics. Only very minor adjustments were necessary. Computations were further shortened by working out the five-year survival ratio for each five-year age group. These are contained in Table I

The fact that the death rate of infants in the first year of life is much higher than in subsequent early years, makes it necessary to work out a survival ratio applicable to those which are born currently during a five-year period. This survival ratio was also derived from the United States life tables 1939-1941, and is shown in footnote (a) Table I. In this instance the United States survival ratios were used without adjustment.

The procedure for calculating the number of females and the number of births, both male and female, in the six coal producing counties as of 1945 is shown in Table II. This was applied for the successive five-year intervals up to 1960 for each of the three groups of counties -- adding at each step the number of surviving children who were born in the previous five-year period.

Table I

Five-year survival ratios for five-year age groups of the population derived from United States life table 1939-1941, native white males and females a/

Age group	United States b/		Coal producing c/ counties		Rural counties c/		Dauphin and c/ Lebanon counties	
	Male	Female	Male	Female	Male	Female	Male	Female
0 - 4	.9810	.9847	.9650	.9750	.9650	.9750	.9646	.9747
5 - 9	.9946	.9961	.9941	.9958	.9941	.9958	.9937	.9949
10 - 14	.9934	.9956	.9935	.9957	.9935	.9957	.9930	.9953
15 - 19	.9902	.9932	.9905	.9934	.9905	.9934	.9897	.9921
20 - 24	.9881	.9913	.9882	.9913	.9882	.9913	.9869	.9899
25 - 29	.9865	.9894	.9865	.9893	.9865	.9893	.9850	.9872
30 - 34	.9825	.9868	.9825	.9868	.9825	.9868	.9804	.9850
35 - 39	.9761	.9826	.9760	.9827	.9760	.9827	.9732	.9803
40 - 44	.9647	.9757	.9650	.9737	.9650	.9737	.9627	.9695
45 - 49	.9472	.9648	.9500	.9640	.9500	.9640	.9478	.9620
50 - 54	.9217	.9484	.9229	.9475	.9330	.9476	.9210	.9433
55 - 59	.8865	.9228	.8908	.9264	.8910	.9266	.8893	.9256
60 - 64	.8391	.8832	.8462	.8857	.8465	.8860	.8452	.8848
65 - 69	.7710	.8199	.7805	.8305	.7810	.8310	.7803	.8302
70 - 74	.6719	.7228	.6810	.7340	.6820	.7350	.6811	.7342
75 +	.4556	.4897	.4300	.4665	.4300	.4675	.4296	.4666

---

a/ Survival ratio of children born currently during a five year period: Male .9574, Female .9661

b/ Derived from U. S. Dept. of Commerce: United States Life Tables 1939-1941. Vital Statistics, Special Reports. Vol. 19(4).

c/ Survival ratios for the three groups of counties were derived by smooth-curve adjustment of United States Survival Ratios to mortality in Anthracite Region counties for 1940-1943, reported by Pennsylvania State Bureau of Vital Statistics.

Computation of number of female survivors and number of births 1940-1945

Six coal producing counties

Age group	Number of persons, 1940	Five-year survival ratio	Survivors 1945	Women 15-45 surviving at midway point	Five-year birth rate per 1,000 women	Births
0 - 5	42,930	.9760	41,906			
5 - 9	48,419	.9958	48,216			
10 - 14	61,263	.9957	61,000	61,131	20	1,223
15 - 19	65,841	.9934	65,406	65,624	185	12,140
20 - 24	57,991	.9913	57,486	57,739	545	31,468
25 - 29	52,338	.9893	51,778	52,058	555	28,892
30 - 34	46,350	.9868	45,738	46,044	320	14,734
35 - 39	40,748	.9827	40,043	40,396	135	5,453
40 - 44	38,069	.9737	37,068	37,569	35	1,315
45 - 49	37,109	.9640	35,773			
50 - 54	31,773	.9475	30,105			
55 - 59	25,026	.9264	23,184			
60 - 64	19,624	.8857	17,381			
65 - 69	15,267	.8305	12,679			
70 - 74	10,461	.7340	7,678			
75 +	10,121	.4665	4,721			

Total births 95,225; males at .511 sex ratio at birth, 48,660; females at .489 sex ratio at birth 46,5
males surviving at end of period at .9574 = 46,587; females surviving at end of period at .9661 = 44,

NORTHEASTERN FOREST RESEARCH ADVISORY COUNCIL

Francis R. Cope, Jr., Chairman, Woodbourne Orchards, Dimock, Pennsylvania

J. R. Schramm, Vice-Chairman, Head, Dept. of Botany, University of Pennsylvania, Philadelphia

Victor A. Beede
Head, Dept. of Forestry
Penna. State College, State College, Pa.

F. W. Besley
300 Wendover Road
Baltimore, Maryland

Harold O. Cook, Director
Dept. of Conservation
15 Ashburton Place, Boston, Mass.

Joshua A. Cope, Extension Forester
College of Agriculture
Ithaca, N. Y.

D. B. Demeritt
Head, Dept. of Forestry
University of Maine, Orono, Maine

E. F. Ehrhart, Forest Engineer
Armstrong Forest Co.
Johnsonburg, Pa.

R. Lynn Emerick
Director, Bureau of Forests
Dept. Forests & Waters, Harrisburg, Pa.

Thomas Farwell, General Manager
Ryegate Paper Company
East Ryegate, Vermont

John H. Foster, State Forester
Forestry & Recreation Dept.
Concord, N. H.

George A. Garratt
Head, Dept. of Forestry
Yale University, New Haven, Conn.

[illegible]
Cotter and Hanlon Co.
[illegible], N. Y.

Austin F. Hawes
[illegible]
West Hartford, Conn.

N. W. Hosley
Head, Dept. of Forestry
University of Connecticut, Storrs, Conn.

W. G. Howard
Director, Lands and Forests
Conservation Dept., Albany 7, N. Y.

Curtis M. Hutchins, President
[illegible] Land Co.
Bangor, Maine

J. S. Illick, Acting Dean
New York State College of Forestry
Syracuse, N. Y.

[illegible], Chief Forester
Dept. of Agriculture & Conservation
State House, Providence, R. I.

O. E. Jennings, Curator of Botany
Carnegie Museum
Pittsburgh, Pa.

Joseph F. Kaylor, State Forester
Dept. of State Forests & Parks
Annapolis, Maryland

Raymond Kienholz, State Forester
State Park & Forest Commission
Hartford 1, Conn.

Paul [illegible]
P. H. Glatfelter Co.
Spring Grove, Pa.

F. F. Lininger, Director
Agricultural Experiment Station
State College, Pa.

Robert Lyman, President
[illegible] Chemical Co.
Roulette, Pa.

James L. Madden, Vice-Pres.,
Hollingsworth & Whitney Co.
[illegible] St., Boston 2, Mass.

Perry H. Merrill, State Forester
Forest Service
Montpelier, Vermont

John F. [illegible]
[illegible]
Standard Oil Bldg., Baltimore 2, Md.

Lawrence W. Rathbun
Society for Protection N. H. Forests
5 Capitol St., Concord, N. H.

A. B. Recknagel, Area Forester
Timber Production War Project
Arcade Bldg., Albany 7, N. Y.

Raymond E. Rendall, Forest Commissioner
Forest Service
Augusta, Maine

Harris A. Reynolds, Secretary
Massachusetts Forest & Park Assoc.
3 Joy St., Boston 8, Mass.

Quentin Reynolds, General Manager
Eastern States Farmers' Exchange
West Springfield, Mass.

George L. Schuster, Director
Agricultural Experiment Station
Newark, Delaware

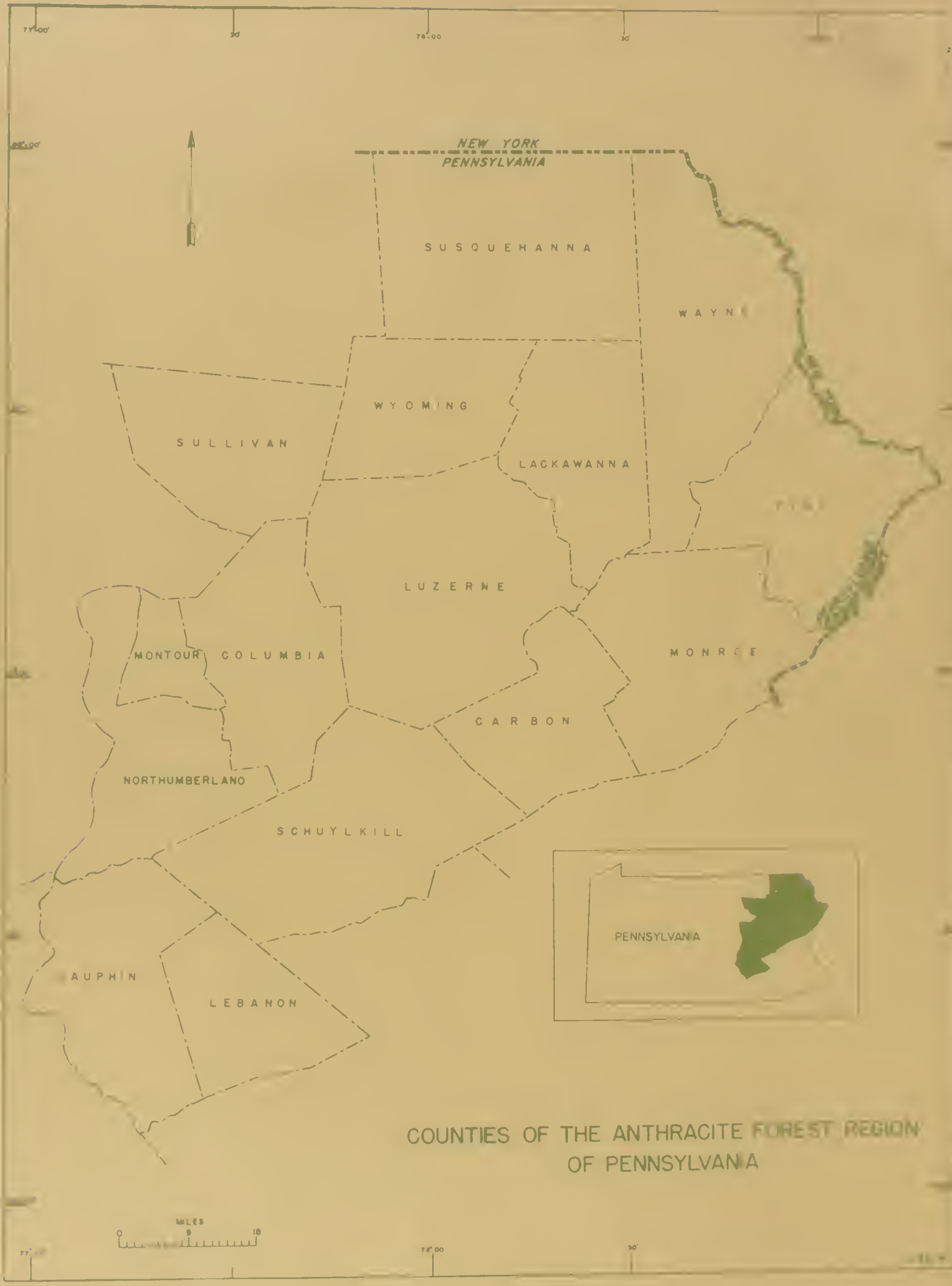
James W. Sewall
Consulting Forester
Old Town, Maine

W. S. Taber
State Forester
Dover, Delaware

Ezra B. Whitman
Whitman, Requardt, & Smith
Baltimore, Maryland

C. P. Wilber, State Forester
Dept. of Conservation & Development
Trenton 7, N. J.

Hardy L. Shirley, Secretary, Northeastern Forest Experiment Station, Philadelphia 7, Pa.



COUNTIES OF THE ANTHRACITE FOREST REGION OF PENNSYLVANIA

Summary

Region Needs More Industries And Drastic Cut in Coal Price

Federal Survey Makes These Two Recommendations For Solution of Anthracite Territory's Business and Unemployment Problem

Drastic slashing of coal production costs and the introduction of new industries are seen as the only means of restoring prosperity to the coal regions in a report issued at Washington following an extensive survey of this territory.

The survey, which was carried out quietly under the Research Division of the WPA, was completed in October but its findings were not made public until yesterday.

It is a comprehensive study of working conditions in ten counties which depend upon the coal industry as their chief source of revenue and employment. It includes such subdivisions as a review of population, relief, "bootleg" coal traffic, wages, cost of production, competitive position of hard coal, etc.

"This brief survey is the first step in evaluating the employment of the stability of the region from the long range standpoint", it was stated in the preface. The report suggests a further study of the situation.

It was pointed out that the effects of the slump in anthracite trade have hurt the railroad industry to the extent of rendering 3,000 workers jobless. Relief costs in this section are also relatively high, it states.

People in the coal belt want to live near the mines, the report states, and therefore any plan for the mass movement of the population to another region is not feasible.

Discussing the cost of production the report states:

(Continued on Page Six)

"Labor is the outstanding item in the cost of mining anthracite, amounting to about 70% of the total. In order to maintain anthracite's competitive position prices for many grades must be lowed substantially. The present policies now being pursued should result in greater efficiency and lower prices and enable operators to reduce prices at the mines, although it is generally contended that material savings are not possible under the present wage scale. The separation of excessive coal lands might permit the operators to sell coal at lower prices without loss, although such procedure at the present time might be extremely difficult to accomplish."

Summary Of Report

A summary of the report follows:

"The Pennsylvania anthracite industry in 1926 employed over 165,000 workers, according to the United States Bureau of Mines. By 1929 this number had decreased to 151,000 and in 1933 it reached 104,600, which was 21,000 less than in 1890.

22 Per Cent On Relief

"This drop in employment has been reflected in the relief figures for the 10 hard coal producing counties. For the year ending May 30, 1935, an average of 21.9 per cent of the population of these 10 counties were on relief as compared with 17.7 per cent for the State of Pennsylvania and 15.1 per cent for the United States as a whole.

"The general trends of production and consumption of anthracite have been downward since 1917 due principally to the competition of other fuels. In recent years the decrease has been accelerated by the general business depression. Almost completely displaced in the industrial field, the consumption of anthracite in the domestic market has been severely affected by the inroads of oil, gas, bituminous coal, coke, and other secondary fuels.

May Check Decline

"Why a partial recovery in tonnage from the low years of 1932 and 1933 is already evident from 1934 records, it is unlikely that the generally downward trend can be reversed. The rate of decline may be materially lessened and even interrupted by the sound and progressive policies which the industry is now pursuing toward the objective of providing the consumer with cheaper fuel and convenient and efficient heating equipment.

"Anthracite's future competitive position depends chiefly upon reduction of cost to the consumer. This may be influenced by increase in mining efficency reduction in freight rates and other distribution charges, by decreased overhead, or by wage adjustments. The industry has already launched an extensive program of operating modernization which is reflected in the rising trend of labor productivity. It is likely that freight rates will be adjusted to meet the competition of motor trucks. The other costs of distribution and the high overhead charges due to excessive holdings of reserve coal lands are both somewhat susceptible to reduction.

Wage Decrease Unlikely

"A decrease in wage rates in the near future, however, is improbable in view of the history of the industry and the present general trend in wages, although high labor cost is a major factor in anthracite prices.

"Efforts to increase the efficiency of anthracite utilization will also aid in cutting the consumers' fuel bill, but may result temporarily in decreased consumption of coal. From the long-time viewpoint, the application of convenient and efficient heating equipment should prevent the loss of anthracite customers and it may cause some bituminous coal users to revert to hard coal, although automatic equipment utilizes the lower priced grades of anthracite.

Labor Quota Stationary

"In view of the modernization of production facilities and recent trends in consumption, it is estimated thaat the labor quota will remain approximately 40,000 to 50,000 below the 1929 level for at least five years, unless extensive spreading of employment in effected, or unless unusual methods are taken to increase anthracite consumption. It is unlikely, however, that the decrement in employment in terms of man-days or units of work can ever be regained.

"The 10 counties which may be considered to comprise the anthracite region constitute primarily a single industry section dependent almost entirely upon the hard coal industry. Of the total number of gainfully employed in this section in 1929, only six per cent. were engaged in agriculture; approximately 36 per cent. were engaged in service occupations; and 58 per cent were employed in the productive industries.

11 Per Cent. in Textiles

Over 56 per cent. of these industrial productive or non-service workers were associated with anthracite production. The next largest industry, textile manufactures, employed only 11.6 per cent., and iron and steel manufactures, 7.4 per cent.

"Aside from efforts to maintain anthracite production, the problem of rehabilitating the section rests basically upon finding employment for the large group who seem to be permanently displaced from the industry. Full time agricultural employment on a scale sufficient to provide for any substantial number of these workers is not available in the region. Mass movement of the population out of the section is scarcely desirable. A rational approach to the problem seems to lie either in a plan for giving substantial encouragement to the location of other industries in the region, or in making provision for spreading employment.

"The location of other industries within the region may be impossible to accomplish, but it would be most desirable from the standpoint of stabilizing the present one-sided economic structure.

Supplementary Income Needed

"Any plan for wholesale spreading of employment, with its obvious disadvantages, would have to be accomplished by provisions of a source of supplementary income. While neither of these suggestions constitutes a solution of the problem, this analysis definitely indicates that an exploration of their possibilities would be worth while."

6960

WORKS PROGRESS ADMINISTRATION

Washington

THE EMPLOYMENT SITUATION
in the
PENNSYLVANIA ANTHRACITE REGION

October 1935

6960

622

WORKS PROGRESS ADMINISTRATION
Harry L. Hopkins, Administrator

DIVISION OF RESEARCH, STATISTICS AND FINANCE
Corrington Gill, Assistant Administrator

SECTIONAL ECONOMIC RESEARCH
J.M.S. Waring

THE EMPLOYMENT SITUATION
in the
PENNSYLVANIA ANTHRACITE REGION

October 1935

Prepared by

W.C. Trapnell

PREFACE

The Pennsylvania anthracite region, comprising parts of ten counties located in the eastern part of the state, depends principally upon the mining and preparation of hard coal for its economic existence. In recent years there has been increasing unemployment in the anthracite industry and relief in the section has been comparatively high.

This brief survey is the first step in evaluating the employment stability of the region from the long range standpoint. It therefore involves a preliminary analysis of the vital factors in anthracite, the major industry. The social and economic characteristics of the section, the extent and nature of the present distress, and the probable prevalence of unemployment in the future should all be known in order to formulate any plan of action for the improvement of conditions. The present study should be supplemented by a field survey, particularly to obtain more detailed current information concerning the other industries within the region.

The major problems of the anthracite industry are presented in order to cast light upon the character and probable future of employment in the region. It is not within the province of this report to propose any remedy for the ills of the anthracite industry, itself, or to advocate any policy in the conduct of its internal affairs. The purpose of the analysis in this respect is purely informative and not recommendatory.

In connection with the preparation of this report, it is desired to record the helpful cooperation of the U.S.Bureau of Mines, whose data form the chief statistical basis of this report; the Bureau of Labor Statistics; the Pennsylvania Department of Mines; and the Anthracite Institute.

Washington, D.C.
October 4, 1935.

CONTENTS

Page

Introduction.. 3
Economic Structure of the Anthracite Section.................... 3
The Anthracite Mining Population + [illegible]................... 6
Unemployment and Relief... 7
The Pennsylvania Anthracite Industry............................ 10
Production Trends... 12
Trends in Employment.. 15
The "Bootleg" Coal Traffic...................................... 18
Wages and Earnings.. 18
Cost of Production.. 20
Transportation.. 22
Value and Price... 24
The Competitive Position of Anthracite.......................... 26
The Fuel Oil Supply... 31
Imports and Exports... 31
Stimulation of Anthracite Consumption........................... 32
An Approach to the Problem of Rehabilitation of the Anthracite Region.. 33

TABLES

I Industrial Employment Breakdown of the Pennsylvania Anthracite Region A-1
II Pennsylvania Relief Statistics.................................. A-2
III Production, Men Employed, Days Worked, Man-Days, and Output Per Man Per Day 1910-1934.. A-3
IV Employment by Counties - 1924 and 1930-1934..................... A-4
V Methods of Mining 1920-1933...................................... A-5
VI Number and Percent of Underground Workers, Man-Days Underground and Output Per Man Per Day, 1920-1933.............................. A-6
VII Value and Consumption 1919-1934................................ A-7
VIII Distribution for Coal Years 1916-17 and 1928-29............... A-8
IX Trends in Distribution - 1920-1933.............................. A-9
X Principal Fuels Supplied for Domestic and Commercial Heating in the United States - 1925-1934.................................... A-10

CHARTS

I Location of Producing Fields..................................... A-11
II Vital Statistics of Pennsylvania Anthracite, 1910-1934.......... A-12
III Anthracite Production and Man Days, 1910-1934.................. A-13
IV Anthracite Production By Years, 1840-1935....................... A-14
V Anthracite Production - Average Production Per Working Day in Each Month 1921-1934.. A-15
VI Pennsylvania Anthracite - Tonnage Mined By Various Methods 1923-1933.. A-16
VII Trends in Consumption of Domestic Fuels 1924-1934.............. A-17
VIII Anthracite Mining - Monthly Indices of Employment and Payrolls....... A-18
IX Trend of Relief in the Anthracite Region 1934-1935.............. A-19

THE EMPLOYMENT SITUATION IN THE PENNSYLVANIA ANTHRACITE REGION

SUMMARY

The Pennsylvania anthracite industry in 1926 employed over 165,000 workers, according to the United States Bureau of Mines. By 1929 this number had decreased to 151,500 and in 1933 it reached 104,600 which was 21,000 less than in 1890. This drop in employment has been reflected in the relief figures for the ten hard coal producing counties. For the year ending May 31, 1935 an average of 21.9 percent of the population of these ten counties were on relief as compared with 17.7 for the state of Pennsylvania and 15.1 percent for the United States as a whole.

The general trends of production and consumption of anthracite have been downward since 1917 due principally to the competition of other fuels. In recent years the decrease has been accelerated by the general business depression. Almost completely displaced in the industrial field, the consumption of anthracite in the domestic market has been severely affected by the inroads of oil, gas, bituminous coal, coke, and other secondary fuels. While a partial recovery in tonnage from the low years of 1932 and 1933 is already evident from 1934 records, it is unlikely that the generally downward trend can be reversed. The rate of decline, however, may be materially lessened and even interrupted by the sound and progressive policies which the industry is now pursuing toward the objective of providing the consumer with cheaper fuel and convenient and efficient heating equipment.

Anthracite's future competitive position depends chiefly upon reduction in cost to the consumer. This may be influenced by increase in mining efficiency, reduction in freight rates and other distribution charges, by decreasing overhead, or by wage adjustments. The industry has already launched an extensive program of operating modernization which is reflected in the rising trend of labor productivity. It is likely that freight rates will be adjusted to meet the competition of the motor truck. The other costs of distribution and the high overhead charges due to excessive holdings of reserve coal lands are both somewhat susceptible to reduction. A decrease in wage rates in the near future, however, is improbable in view of the history of the industry and the present general trend in wages, although high labor cost is a major factor in anthracite prices.

Efforts to increase the efficiency of anthracite utilization will also aid in cutting the consumer's fuel bill but may result temporarily in decreased consumption of coal. From the long-time viewpoint, the application of convenient and efficient heating equipment should prevent the loss of anthracite customers and it may cause some bituminous coal users to revert to hard coal, although automatic equipment utilizes the lower-priced grades of anthracite.

In view of the modernization of production facilities and recent trends in consumption, it is estimated that the labor quota will re-

main approximately 40,000 to 50,000 below the 1929 level for at least five years, unless extensive spreading of employment is effected, or unless unusual methods are taken to increase anthracite consumption. It is unlikely, however, that the decrement in employment, in terms of man-days or units of work, can ever be regained.

The ten counties which may be considered to comprise the anthracite region constitute primarily a single industry section dependent almost entirely upon the hard coal industry. Of the total number gainfully employed in this section in 1929, only 6 percent were engaged in agriculture; approximately 36 percent were engaged in the service occupations; and 58 percent were employed in the productive industries. Over 56 percent of these industrial productive or non-service workers were associated with anthractie production. The next largest industry, textile manufactures, employed only 11.6 percent, and iron and steel manufactures, 7.4 percent.

Aside from efforts to maintain anthracite production, the problem of rehabilitating the section rests basically upon finding employment for the large group who seem to be permanently displaced from the industry. Full-time agricultural employment on a scale sufficient to provide for any substantial number of these workers is not available in the region. Mass movement of population out of the section is scarcely desirable. A rational approach to the problem seems to lie either in a plan for giving substantial encouragement to the location of other industries in the region, or in making provision for spreading employment.

The location of other industries within the region may be impossible to accomplish, but it would be most desirable from the standpoint of stabilizing the present one-sided economic structure. Any plan for wholesale spreading of employment with its obvious disadvantages would have to be accompanied by provision of a source of supplementary income. While neither of these suggestions constitutes a solution of the problem, this analysis definitely indicates that an exploration of their possibilities would be worthwhile.

INTRODUCTION:

Within an area of approximately 33,000 square miles in eastern Pennsylvania are located the fields producing 99 percent of the nation's hard coal, and in 1929 furnishing employment to about 161,000 workers(1). In 1933 the average annual employment was 51.7 percent of that in 1929, according to the Bureau of Labor Statistics, and in 1934 had only increased to 59.6 percent. The decline in anthracite mining, however, is of longer duration than the present general business depression. From 1913 through 1926 there was practically no increase in the production of anthracite with the exception of the peak output during 1917 and 1918, and production and man-days employment have shown a decided downward trend since 1924.

This declining trend is of the utmost significance to the population of the anthracite region. It not only affects those directly dependent upon anthracite mining for their existence, but also those associated with the numerous service and other secondary industries within the area. Unless recent trends of hard coal output are reversed or measures taken to provide other employment for those displaced from the declining industry, the once prosperous anthracite region may become another social and economic sore spot.

The purpose of this preliminary report is to present a brief picture of the economic structure of the Pennsylvania anthracite region, and of the factors which determine the stability of its major industry.

ECONOMIC STRUCTURE OF THE ANTHRACITE SECTION:(2)

Anthracite is mined in ten counties in Pennsylvania - Luzerne, Lackawanna, Schuylkill, Northumberland, Carbon, Dauphin, Columbia, Susquehanna, Sullivan and Wayne. In all of these counties, coal mining constitutes one of the vital industries (vital industries are the largest industries which collectively employ seventy percent of the productive labor). Over 95 percent of the workers employed in the production of anthracite reside within the five counties of Luzerne, Lackawanna, Schuylkill, Northumberland and Carbon. These counties comprise the anthracite region proper, yet employment in each of the other five is sufficiently important to include them in the general study. The extent of the producing fields in these counties may be seen from Map I.

Sullivan, Susquehanna and Wayne counties have a comparatively large agricultural population. Textiles, however, constitute the major industry in Wayne county, while in Sullivan and Susquehanna, coal mining ranks first in the list of productive industries. In Columbia and Dauphin counties, iron and steel manufacture is predominant although coal mine employees constitute 15 to 20 percent of the industrial non-service workers.

---

(1) Calculated from 1930 Census of Population. See Table I.

(2) For general information relating to population trends, land utilization, social conditions, etc. see Preliminary Report, Pa. State Planning Board, Harrisburg, 193

As the occupational data of the Census are reported only for counties and for urban centers of over 25,000 population, the ten counties producing anthracite will be considered as a distinct economic section, eliminating, however, the city of Harrisburg which lies without the anthracite region and can be separated. While the section thus defined embraces much territory not strictly within the anthracite mining area, its inclusion does not alter the basic results of a sectional analysis.

An occupational break-down for each of the counties enumerated and for the section as a whole is presented in Table I. A summary of the basic sectional figures contrasted with those of the state of Pennsylvania may be made as follows:

	Anthracite Counties	Pennsylvania Total	Pennsylvania Excluding All Cities of 25,000 or Over
Population	1,386,315	9,631,350	5,526,987
Total Gainfully Employed	493,577	3,722,428	1,955,171
Percent of Total Gainfully Employed:			
Service	35.8	44.5	36.1
Agricultural	6.1	6.7	12.4
Industrial Non-Service	58.1	48.8	51.5
Coal Mines	32.7	8.0	13.5
Coal Mines - % of Non-Service	56.3	16.3	26.3

On the basis of these figures, 14.4 percent of the population of Pennsylvania and 15.9 percent of the state's industrial non-service workers are included in these ten counties. Of the total number of coal mine employees, 54 percent reside in these counties. The section, however, contains only 12 percent of the state's agricultural workers.

Four cities having populations of over 25,000 are included in the section - Wilkesbarre, Scranton, Nanticoke, and Hazelton. A condensed breakdown of the gainfully employed in 1929 in these urban centers indicates their essential structure:

	Scranton	Wilkesbarre	Hazelton	Nanticoke
Population	143,443	86,626	36,765	26,043
Total Gainfully Employed	56,711	32,767	13,727	9,431
Percent of Total Gainfully Employed:				
Service	50.6	47.4	41.3	23.4
Industrial Non-Service	49.4	52.6	58.7	76.6
Coal Mines	22.1	25.7	24.5	58.2
Coal Mines - % of Non-Service	44.6	48.7	41.7	76.7

Wilkesbarre, Scranton and Hazelton have a diversification of industries, while Nanticoke has essentially but a single industry and resembles the numerous smaller cities which dot the area.

Of the total gainfully employed in the section, 35.8 percent were engaged in service occupations which include the wholesale and retail trades, transportation and communications, and all public, professional, personal and domestic service occupations. This is approximately the same percentage as the average for the rural sections (1) of the United States, giving a ratio of about one service worker for two productive workers, and is considered to be the normal proportion. Of the 177,000 service workers in the section, 28 percent were engaged in wholesale and retail trade and 19.5 percent in transportation and communications.

Only 6.1 percent of the total gainfully employed were engaged in agriculture as contrasted with 6.7 percent for the state as a whole. The land is hilly or rolling and in large part steep and somewhat stony, and not conducive to extensive cultivation. General and dairy farming are the predominant types along with self-sufficing and part-time farming.

Anthracite mining constitutes the most important vital industry in the region. Out of 286,420 workers in productive industries, 161,427 or 56.3 percent were associated with hard coal production. The second vital industry in rank of importance is textile manufacture, principally silk mills, which employed 11.6 percent of the productive workers. These mills are concentrated in or near the principal anthracite centers and their employees are predominantly women, presumably part of them from the families of anthracite miners. The iron and steel industries employed 7.4 percent of the productive workers in the section and constitute the third vital industry group. This group is predominant and is largely concentrated in Dauphin and Columbia counties. A material portion of the iron and steel industry of the region is closely allied with anthracite, being devoted to the manufacture of mine equipment and supplies.

The building industry is of secondary importance, comprising only 6.2 percent of the productive employment. This compares with a figure of 11 percent for the state of Pennsylvania and an average of over 15 percent for the United States. The low ratio of employees in the building industry is indicative of lack of development and progress in the section.

With 161,000 workers in the anthracite industry comprising 33.4 percent of the total gainfully employed in all occupations, and with approximately 80,000 of those in the service industries necessarily dependent upon the mine workers, the overwhelming importance of anthracite may be appreciated. These 241,000 workers support a population of about 670,000 people, based on the average ratio of total gainfully employed to total population for the section as shown in Table I. In addition to these, there are numerous workers associated with miscellaneous industries which are in themselves largely dependent upon coal mining for their economic existence.

---

(1) Excluding cities of 25,000 population and over.

RACIAL GROUPS - SCHUYLKILL COUNTY

From Files of Federal Writers' Project
Schuylkill County.

RACIAL GROUPS - SCHUYLKILL COUNTY

Many of the earliest land owners of Schuylkill County in the year 1750, were English Quakers, but the actual settlers were mainly Germans, whose ancestors were exiled from their homes in the valley of the Rhine and Neckar. "The first white settler of whom we have authentic account was George Gottfried Orwig, who, with his wife Gloria, settled at Sculp Hill in 1747, near the site of the last traditional Indian village in Schuylkill County." They had come from Germany, and after a brief stay south of the Blue Mountain, had pushed north of the mountain to make a home for themselves in the pathless woods. At the start of the French and Indian war they fled further south, into Berks County, and remained there until its close in 1759. After the close of the struggle the course of settlement commenced to ascend the Schuylkill towards its headwaters, and was made by the Germans who had been settled further south and others who had come direct from the Fatherland.

The chief industries of these pioneers were farming and lumbering. The farming was confined to individual patches, in which corn, potatoes, turnips, and a few other vegetables were raised for the family use. From the Blue to Sharp mountains, the original timber was chiefly white oak and chestnut, while beach, birch, poplar, gum and maple were also found. North of Sharp mountain the valleys were covered with spruce, or hemlock, under which flourished a heavy growth of laurel. At this time great quantities of fish abounded the waters of the Schuylkill River, mostly Herring, Sturgeon, and Shad. In the woods there was an abundance of wild game.

Living conditions of the pioneer were not very comfortable, log houses or huts, were constructed and were used for quite some time,

later towns were formed, and today the farming districts south of Sharp Mountain (Schuylkill County) still remain in the hands of the early German settlers decendants.

Many superstitions existed among the early settlers of Schuylkill County. The New Englanders were not along in their belief in witchcraft. The same belief was true in the southern part of the county, where several so-called magicians lived who were believed to be in league with the spirits, and who practiced on the credulity of the country people for their own benefit. The English Quakers, and Germans as mentioned were the inhabitants between the years of 1750 to 1815 at which time the Schuylkill Canal was being constructed and the early development of the coal industry which began about 1820. The very early miners were mainly English and Welsh, and somewhat later Irish. In the mining regions north of the Sharp Mountain since 1820 there had been a miscellaneous assortment of racial groups. The Sclav element began to come in force soon after the development of the Mahanoy, and other districts north of the Broad Mountain, Schuylkill County around 1875-80, and at present are the chief racial group among the miners.

The chief cause of large immigration from foreign counties was economic conditions, and the development of the coal industry, which went forward in rapid strides. The various coal companies or operators welcomed these immigrants for employment at the various mines. At different times other manufacturing plants throughout Schuylkill County afforded great opportunities for the immigrants.

Changes and transformation due to influx of different elements are quite common throughout different towns and small communities in Schuylkill County. Pottsville has a slum district located on West Minersville Street, here there are twelve or more different nationalities

of both white and colored race. This section of the town was at one time a very fine neighborhood. This condition prevails north of the mountain in Schuylkill County, where communities or (patches) as they are known throughout the coal region, which were ihabited originally Irish, or Welsh, are now inhabited by different nationalities. This condition makes bi-lingual districts common throughout Schuylkill County.

Americanization and intermarriage had obliterated to a large extent the northern Europe immigration. The southern Europe group have not obliterated racial differences, and are quite numerous throughout the County. There are no museums or other places in Schuylkill County where a study of the different races can be made.

In most of the foreign churches of the Roman Catholic Denomination, sermons and prayers are usually carried on in the native tongue, during at least one Sunday Mass, but Masses and other church ceremonies are in Latin.

In most foreigh churches of other denominations services are usually in the native tongue.

Some of the foreigh churches hold classes for the juvenile members of their congregations in which the native language is taught.

There are two newspapers in Schuylkill County published in a foreign tongue: Tygodnik Gorniezy, a Polish newspaper, published by the Polish Publishing Company, 228 West Lloyd Street, Shenandoah, Pennsylvania; and Saule (Sun), a Lithuanian newspaper, published by W. D. Boczkowski and Company, South and A Streets, Mahanoy City, Pennsylvania.

RACIAL GROUPS - SCHUYLKILL COUNTY

Foreign Born White Population (Census of 1930)

Country	Schuylkill County	Pottsville	Tamaqua	Mahanoy City	Shenandoah
England	904	112	73	116	83
Scotland	186	40	5	14	9
Wales	546	55	45	62	70
North Ireland	109	3	7	3	2
Irish Free State	450	26	11	46	39
Norway	8	1			
Sweden	13	4	5		
Denmark	8	1	4		
Netherlands	6				
Belgium	9	3	1	4	
Switzerland	19	4		1	
France	60	8	3	6	5
Germany	1004	239	64	83	39
Poland	7668	98	48	377	2298
Czechoslovakia	4327	161	66	444	115
Austria	689	66	8	15	22
Hungary	252	24	1	1	19
Yugoslavia	149		3	15	
Russia	1158	118	35	98	147
Lithuania	7391	74	379	1010	1585
Latvia	6		1		2
Finland	3				
Rumania	29	5	4		2
Greeks	182	52	29	26	29
Italy	2645	301	222	191	293
Spain	128	10	1	26	16
Palestine Syria	176	56			69
Turkey	15	7		3	3
Canadians	105	34	7	5	8
Chinese	11				
Miscellaneous	146	26	7	5	23
Total	28391	1528	1029	2551	4877

RACIAL GROUPS - SCHUYLKILL COUNTY

Native White of Foreign or Mixed Parentage (Census of 1930)

Country	Schuylkill County	Pottsville	Tamaqua	Mahanoy City	Shenando
England	3938	503	295	531	257
Scotland	560	106	24	38	30
Wales	2610	320	164	256	219
North Ireland	1007	45	29	32	25
Irish Free State	5537	631	177	518	473
Norway	21	3			
Sweden	33	6	12	1	
Denmark	17	2	6	1	
Netherlands	28	5	2		
Belgium	17	5		8	
Switzerland	89	21	14	2	
France	352	38	49	22	15
Germany	6926	1542	691	530	267
Poland	18149	209	127	789	5352
Czechoslovakia	10002	298	154	1109	269
Austria	2722	220	23	92	110
Hungary	509	50	4	3	25
Yugoslovia	197		8	6	
Russia	2531	280	64	196	355
Lithuania	14394	224	725	1918	2917
Latvia	11				
Finland	8	2	1		
Rumania	34	6	1		2
Greece	190	53	16	18	25
Italy	4861	515	310	310	508
Spain	67	9		19	11
Palestine Syria	316	127			87
Turkey	14	8		2	4
Canadians	180	50	3	14	14
Chinese					
Miscellaneous	259	29	10	4	60
Total	75479	5307	2909	6419	11025

Schuylkill County - Populati

Pottsville Public Library
Pottsville, Pa.

ANTHRACITE MINING POPULATION:

A survey of the living conditions in the anthracite region and composition of the mining population was prepared in 1923 by the U.S. Coal mission(1). An abstract of the outstanding Coal Commission findings based n the original schedules of the 1920 Census is given below:

1: Ninety percent of the mine workers lived in other than company-owned dwellings.

2: Of the company-owned dwellings in which the other ten percent lived, over ninety percent were located in or within five miles of communities of over 2500 population.

3: Fifty-seven percent of the workers maintained homes, 23 percent lived with family, and 20 percent obtained board and lodging.

4: Of the workers maintaining homes, 32 percent owned their own dwellings.

5: The number of anthracite mine workers living in communities of specified population was as follows:

	Percent of Total Workers
Cities having population of:	
(a) 50,000 and over	11.2
(b) 10,000 and under 50,000	28.2
(c) 5,000 and under 10,000	20.8
(d) 2,500 and under 5,000	9.4
Total	69.6

6: The independent towns in which the great majority of mine workers live are normal American communities showing all the variations in the scale of civic excellence and defects that characterize urban centers throughout the country.

7: Approximately 53 percent of the anthracite miners were foreign born and more than half of these came from Poland and Russia.

8: Sixteen percent of all anthracite mine workers could neither read nor write. The overwhelming majority of the illiterates were the foreign born from non-English speaking nations.

Report of the U.S. Coal Commission, Part II, pp. 534-536

9: Of the total anthracite workers maintaining homes, 55.5 percent had more than four members per family, i.e., father, mother and children.

10: Over 55 percent of the families of workers maintaining homes had only one bread winner per family, 27 percent had two, and 18 percent had more than two.

While these findings of the Coal Commission have in all probability been considerably altered in degree, they still serve to give a fairly qualitative picture of the mining population. Further detail can be had by reference to the Coal Commission's report.

The conditions under which the anthracite miner lives are far different from those of the workers in the bituminous fields who reside mainly in company-owned and controlled communities in sparsely settled and inaccessible areas. The anthracite worker enjoys superior facilities of community life and a generally higher standard of living. The part-time subsistence farmer who occasionally works in the coal mines is less prevalent in the anthracite region, and while 70 percent of the anthracite workers live in cities of over 2500 population, only 21 percent of the bituminous miners were classified by the 1920 Census as urban (1). These differences in the status of the anthracite and the bituminous coal worker must be taken into account in any program of social or economic planning.

UNEMPLOYMENT AND RELIEF:

Current employment figures for the anthracite industry are available from several sources. The U.S. Bureau of Mines publishes average annual employment figures and the Bureau of Labor Statistics publishes monthly and annual indices of employment. Annual figures may also be obtained upon request from the Pennsylvania Department of Mines. The Census of Mines and Quarries reports employment for the Census years and the Census of Population reports those gainfully employed in coal mining by states and counties. Differences which occur in the figures from these various sources may be explained. The records of the Bureau of Mines give the normal working force when a mine is operating, and they include all mines that may have operated, however short the time during the year. The totals for districts represent the number of men who drew pay from the mines during the year.

The monthly indices of the Bureau of Labor Statistics are based upon returns of the number on the payroll from a representative number of establishments and the annual index is the arithmetical average of these monthly figures. These annual indices, therefore, indicate a lower value than the figures of the Bureau of Mines.

The figures of the Census of Mines and Quarries is an average of the men drawing pay on the fifteenth of each month, and the method is therefore comparable to that of the Bureau of Labor Statistics. The number of workers gainfully employed in the coal mining industry as reported in the Census of Population is based upon a house-to-house canvas and the figures, therefore, include many workers not covered by the survey of establishments. A comparison of these figures for 1929 and of the Bureau of Mines and Bureau of Labor Statistics data from 1929 to 1934 inclusive is given below:

---

(1) Census classification - living in cities of 2500 or over.

Year	Average Annual Employment U.S. Bur. of Mines	Percent of 1929	Annual Index of Employment Dept. of Labor 1929=100	Employment Census of Mines and Quarries 1929	Gainfully Employed in Coal Mining[a] 15th Census U.S.
1929	151,501	100.0	100.0	142,801	-
1930	150,804	97.5	93.4	-	161,427
1931	139,431	92.1	80.5	-	-
1932	121,243	80.0	62.5	-	-
1933	104,633	69.1	51.7	-	-
1934	109,050	72.0	59.6	-	-

(a) Ten counties; see Table I. Census made April 1, 1930

Using the figures of the Bureau of Mines, unemployment in 1933 and 1934 averaged about 30 percent, or between 45,000 and 47,000 workers, based upon those employed in 1929. There has been a steady decline in employment, however, since 1926 as can be seen from Table III and Chart II. In that year the number employed by the industry totalled 165,386, the highest point reached since 1915. Together with the decrease in the number employed, there has been an accompanying decrease in the average number of days worked as shown by Chart II and consequently the man-day curve on Chart III shows a greater rate of decrease than that of numbers employed.

There is appreciable seasonal variation in employment as shown by the Bureau of Labor monthly indices of employment and payrolls, plotted on Chart VIII. The index of employment reached a low of 39.5 in June of 1933 while the payroll index dropped to 30 in May of that year. The 1933 annual index was 51.7.

What has been the effect of these conditions upon the relief load? During the twelve months ending June 1, 1935, an average of 304,000 persons were on relief, amounting to 21.9 percent of the population. This compares with an average of 17.7 percent for the state of Pennsylvania and 15.1 percent for the United States over the same period of time. Relief expenditures in the section averaged over $2,000,000 per month. The statistics of relief by counties are given in Table II and the trend of relief in Chart IX.

The decline in employment in the manufacturing industries of the section has been only slightly more than half that which occurred in anthracite. According to the Census of Manufactures, the number of wage earners in manufacturing industries in Lackawanna, Luzerne, Schuylkill and Northumberland counties dropped from 64,736 in 1929 to 53,320 in 1933, a decrease of 17.7 percent. The following table shows employment trends in some of the principal manufacturing industries in the Wilkesbarre-Scranton industrial area, which includes Lackawanna and Luzerne counties(1).

---

(1) Census of Manufactures, 1929 and 1933.

Industry	Number of Wage Earners 1929	1933	Percent Change 1929-1933
Textiles	18,562	15,065	-18.9
Clothing	3,807	4,089	7.4
Steam R.R. Repair Shops	3,372	2,474	-26.6
Foundry & Machine Shop Products	1,806	823	-55.5
Bread & Bakery Products	1,677	1,904	13.5
Printing & Publishing	1,326	1,017	-23.3
All Other Manufactures	11,718	9,658	-17.6
Total	42,268	35,030	-17.1

Foundry and machine shop products, and railroad repair shops show the heaviest employment losses. The decline in the printing and publishing industries is chiefly due to book publishing. The strictly non-durable goods industries have held up relatively well, some of them actually increasing employment during the period.

Data on the occupational characteristics of the relief population of these counties have not yet been made available and the proportion of anthracite workers on relief cannot be ascertained. An analysis of relief figures and the employment breakdown based on the Census indicates that the percentage of relief is higher in those counties having the greatest concentration of anthracite workers. The principal hard coal counties - Lackawanna, Luzerne, Northumberland and Schuylkill - all show an average of over 20 percent of the population on relief. On the other hand, Sullivan, Susquehanna and Wayne counties which have a low proportion of coal workers and a high proportion of agricultural employees, averaged under 15 percent of the population on relief. Dauphin and Carbon counties, also with a low proportion of anthracite miners, similarly have lower relief loads. In Columbia county the iron and steel and textile industries are predominant and the high relief load there cannot be attributed to coal alone. In Table IV employment figures by counties for 1924 and for the depression years, 1930 to 1934, are given and the decrease is compared with the county relief percentage. In general the highest relief is found in those counties with the greatest loss in employment in coal mining.

An occupational survey of the relief population in the anthracite cities of Shenandoah and Wilkesbarre(1) indicates a large percentage of coal miners on relief. In Wilkesbarre, the employable workers listed as usually engaged in the coal mining industry comprised a greater proportion of the total employables on relief than coal workers did of the gainfully employed as recorded by the 1930 Census. These figures are as follows for May 1934 based upon the number of individuals on relief, ages 16-64, working or seeking work, and compared with the Census data:

---

(1) Survey of the Occupational Characteristics of the Urban Relief Population, F.E.R.A., Feb. 1935.

Wilkesbarre

Usual Occupation	No. on Relief (40% Sample)	Percent	Total Gainfully Employed 1929	Percent
Total	5,723	100.0	32,767	100.0
Service	1,552	26.9	15,523	47.5
Coal Mines	1,965	34.3	8,410	25.7
Textiles	322	5.6	2,668	8.2
All Others	1,884	33.2	6,166	18.6

The unemployment problem existent in this section must be considered in view of the economic conditions of the principal industry - anthracite. For this reason a brief analysis of the anthracite industry is given in the following pages.

THE PENNSYLVANIA ANTHRACITE INDUSTRY:

The Pennsylvania anthracite industry, as understood in the trade and as used in this report is confined to a small area in eastern Pennsylvania. The anthracitic coals commercially produced in Colorado, New Mexico, Arkansas and Virginia are in no way connected with the closely knit anthracite industry of Pennsylvania; they are economically affiliated rather with the bituminous industry in their respective states.

The Pennsylvania deposits are divided geographically and geologically into four distinct fields - Northern, Eastern Middle, Western Middle, and Southern (Map I). The beds of the Northern or Wyoming field are comparatively flat while the Eastern Middle and Western Middle fields contain both flat and very steeply pitching beds. In the Southern or Schuylkill field, the coal beds lie entirely in very deep basins and at steeply pitching angles. The small Bernice field in Sullivan County contains semi-anthracite.

In the report of the Engineers' Advisory Valuation Committee to the U.S. Coal Commission in 1923(1) the recoverable coal remaining at that time was estimated at 8,979,474,000 tons. The figures for the several fields are given below(1).

Field	Total Coal Remaining (Millions Net Tons)	Percent Recoverable	Recoverable Coal Remaining (Millions Net Tons)
Northern	3,277	67.0	2,195
Eastern Middle	249	69.4	173
Western Middle	3,573	58.1	2,076
Southern	9,256	49.0	4,536

In respect to the length of life of the various fields, the Committee said: "As important factors in production, we estimate for the

---

(1) Report of the U.S. Coal Commission, Part II, p.1031.

northern fields a life of fifty years, for the eastern middle thirty-five years, for the western middle one hundred, and the southern field one hundred ten years. All of these fields will, of course, produce coal long after the above limits but in small quantities and of negligible present value".

Coal from the Western Middle and Southern fields has been more costly to mine in the past owing to depth and to geological conditions resulting in a smaller percentage of domestic sizes, but these fields have the greatest reserves and can be expected to maintain a large production long after the naturally favored fields are exhausted. Already the exhaustion of the easily accessible beds in the northern fields has almost nullified any advantage which they may have held.

Unlike the bituminous industry, the anthracite industry is closely knit and well organized. The greater proportion of the tonnage is controlled by less than ten large companies which were originally affiliated with the railroads serving the region. The production of the seven largest companies which in 1932 and 1933 collectively produced about 60 percent of the total is shown as follows (1):

	(Thousands Net Tons)	
	1932	1933
Glen Alden Coal Co.	7,537	6,920
Hudson Coal Co.	4,770	4,451
Lehigh Navigation Coal Co.	2,964	2,864
Lehigh Valley Coal Co.	2,911	3,436
Philadelphia & Reading Coal & Iron Co.	6,172	5,355
Pittston Co.	3,535	3,085
Susquehanna Collieries	3,429	3,297

While stiff competition for markets is existent between companies, prices are generally well maintained and the "cut-throat" competition so familiar in the bituminous industry is not common. The industry, while facing declining markets and operating at low capacity, may be regarded as reasonably well "stabilized".

Unlike the bituminous coal industry, there has been no material over-capacity in anthracite operations. Capacity is commonly expressed by the calculated annual amount of coal which could be produced at the current rate if the industry worked the full complement of working days in the year. In the case of anthracite this amounts to 303.5 days. A certain capacity must be maintained, which is above production, to meet peak demands. This "necessary" capacity may be calculated by converting the peak production at any period during the year to a basis of annual operation at 303.5 days. In the table shown below the monthly peaks in production expressed as the average tonnage per working day were selected rather than weekly or daily peaks, which could in all prob-

---

(1) Saward's Annual, 1934.

ability be ironed out. The difference between the "necessary" capacity figure and that of total operating capacity is an indicator of the extent of over-capacity. By this measure the industry does not seem over-developed. Prior to the depression the over-capacity did not exceed 12 percent as contrasted with the bituminous coal industry with a pre-depression excess in capacity of 20 percent.

Year	Production	(Millions of Net Tons) Operating Capacity	Necessary Capacity
1923	93	106	103
1924	88	98	92
1925	62	103	105 (a)
1926	84	105	105 (a)
1927	80	108	97
1928	75	105	98
1929	74	100	94
1930	69	101	91
1931	60	100	77
1932	50	94	69
1933	50	83	61
1934	57	84	76

(a) Strike year - abnormal conditions

PRODUCTION TRENDS:

The curve of anthracite production is shown by Chart IV from 1840 to 1934. (See also Charts II, III, VI). Production increased up until the peak year 1917; since then it has been generally downward. Some of the most conspicuous features of the curve are the canyon-like drops that marked the great strikes of 1922 and 1925-26, and the precipitate decline after 1930. The production in 1933 was the lowest since the strike year of 1902, and if this year is regarded as abnormal, it was the lowest since 1890. A material increase was reported in 1934, largely due to extreme weather conditions, but the tonnage for the first eight months of 1935 was behind the output for the corresponding period of the previous year.

As anthracite is primarily a domestic fuel it should be less sensitive to the ebb and flow of prosperity than bituminous coal. The protracted depression which started in 1929, however, has materially influenced anthracite consumption. The decline since 1930 has been the result of those factors which have been operative since 1920, chiefly the displacement by more convenient fuels, and the utilization of cheaper fuels such as bituminous coal, which received a strong impetus during the depression.

Insofar as anthracite is a domestic heating fuel, the demand is seasonal. The average production for each month during a ten year period(1), based on the average per working day to eliminate the comparison of months of unequal length, is shown below in percent of the monthly average for the period.

---

(1) From 1920 to 1932 inclusive, but excluding the strike years 1922, 1925 & 1926.

Index Number of Average Monthly Production

10 year average = 100

January	104	July	90
February	103	August	97
March	94	September	88
April	104	October	117
May	105	November	103
June	95	December	100

The seasonal fluctuations in production are not as great as in the case of bituminous coal. This is due to the excellent stocking characteristics of anthracite and to the policy of the operators in giving substantial price reductions during the slack periods of the year. The monthly production of anthracite from 1921 to 1935 is shown by Chart V.

For trade purposes the anthracite field is divided into three regions, namely, the Wyoming, Lehigh, and Schuylkill regions, and detailed statistics are currently available for these divisions. However, since the principal interest of this report is the problem of employment, county trends are of more significance. The annual production of anthracite in each of the ten counties is given below from 1927 to 1933, together with the percentage decrease for the period:

	Thousands Net Tons							% Decrease
County	1927	1928	1929	1930	1931	1932	1933	1927-1933
Carbon	2,498	1,903	1,999	1,662	1,729	1,662	1,632	34.6
Columbia	661	541	367	279	346	215	559	15.5
Dauphin	1,383	1,156	1,133	1,008	970	800	765	44.7
Lackawanna	16,754	16,348	17,218	15,141	12,644	11,569	11,206	33.0
Luzerne	31,698	29,514	29,289	27,809	23,743	19,699	19,474	38.6
Northumberland	7,093	6,680	6,065	6,988	6,083	4,327	5,239	26.3
Schuylkill	18,866	18,302	16,939	15,949	14,423	11,021	9,964	47.2
Sullivan	170	155	123	64	57	88	113	34.0
Susquehanna & Wayne	724	508	482	338	558	380	392	55.9
Total	79,847	75,105	73,615	69,238	59,543	49,761	49,434	38.1

According to these figures, Dauphin, Luzerne, Schuylkill and Susquehanna and Wayne show a larger drop than the average for the section. The corresponding decreases for the various fields (See Map I) were as follows:

Field	Production-Thousands Net Tons 1927	1933	% Decrease 1927-1933
Northern	44,163	26,843	39.1
Eastern Middle	6,919	5,544	20.0
Western Middle	16,639	10,514	36.7
Southern	12,375	6,640	46.4
Total (1)	80,096	49,541	38.8

(1) Includes dredge coal from rivers in Berks, Cumberland, Lebanon, Montour, Northampton and York counties.

The greatest percentage decline is recorded in the Southern field located principally in Schuylkill and Dauphin counties, although the greatest tonnage loss has taken place in the Northern field.

In addition to fresh mined coal, fine coal is recovered from river beds in a number of counties and from culm banks in the vicinity of the collieries. Processing of this fine coal has not shown a consistent trend, but a steady increase since 1930 is apparent from an inspection of Chart VI and Table IV. In 1933 culm bank and river coal amounted to 3,577,000 tons or 7.2 percent of the total production.

The major part of anthracite is carefully prepared before shipment - this preparation consisting in cleaning and sizing. The larger sizes of anthracite usually termed domestic sizes, command premium prices. The finer "steam" sizes are sold at a lower figure, usually below the cost of production. The principal grades of anthracite, with average mine prices for 1933 as reported by the U. S. Bureau of Mines, are enumerated below:

Domestic	Sales Realization (per net ton)	Steam	Sales Realization (per net ton)
Broken	$5.43	Buckwheat No. 1	$2.84
Egg	5.90	" " 2 (rice)	1.50
Stove	6.25	" " 3 (barley)	1.00
Chestnut	5.95	Boiler	-
Pea	4.22	-	-

One of the practical problems of the anthracite industry concerns the gradual decline in demand for the large domestic sizes, often referred to as the profitable sizes. Since 1923 the proportion of shipments of the higher priced broken, egg, and stove coals has decreased from about 40 percent to about 32 percent due to changes in both industrial and domestic consumption practice. This decrease has resulted in a larger proportion of the smaller sizes, particularly the steam grades, which in the same period increased from 26 percent to 34 percent. The trend to smaller sizes, which is certain to continue will increase the production of silt or very fine coal due to more extensive crushing. While there has been a material increase in this silt production, it has not yet become a major problem because the extra demand for buckwheat, rice and barley is being recovered from old culm banks. However, the industry must solve the problems of preparation and utilization

of the expected greater production of silt, so that this fuel can be sold for steam generation purposes, and will not constitute a loss.

The total consumption of all grades of anthracite will likely continue its downward trend. Undoubtedly the progressive program now being followed by the industry may improve its competitive position and may lessen the rate of decline. It is extremely difficult, however, for anthracite to regain markets once lost to its competitors, and the severe competition of oil, bituminous coal and coke in the domestic market continues to be effective. The increase in efficiency of utilization through the use of automatic equipment, the heat insulation of houses, and the increase in multi-family dwelling resulting in a lower per capita fuel consumption are some of the other factors tending to decrease the demand for domestic fuel.

TRENDS IN EMPLOYMENT:

In view of the declining demand for anthracite, it is not surprising that labor has suffered both from loss of jobs and shorter working time. Combined with the lower production, modernization and the increased use of machinery have been effective in displacing labor.

In Chart II trends in the number employed and the days worked per year are shown graphically. The same information is tabulated in Table III. In 1914, the peak year, 179,679 men were employed. From 1916 through 1927 the number employed remained relatively stable, but after 1927 a consistent decline was recorded. In 1934 there were only 109,050 employees, or less than the number in 1890.

The average number of days worked during the year has been declining since 1924. In that year the mines worked 274 days but in 1933 the working time had fallen to 182 days. The true measure of anthracite employment is man-days as shown in Chart III and Table III. Since the output per man per day has changed a relatively small amount during the past twenty years, the man-day curve is similar to the curve of production. However, no appreciable decline in the man-day curve was evident until 1924. In that year the man-days of work totalled 43.9 million; in 1933 the corresponding figure was 19 million.

The tons per man per day remained substantially stationary from 1910 to 1926 as shown in Chart II. From 1926 a steady increase has been noted and this has been accomplished in spite of the depletion of the more easily minable beds. The improvement has been due to the progressive modernization program of the anthracite operators, and the concentration of mining in the more desirable locations. Data pertaining to employment and mechanization are given in Tables V and VI and Chart VI.

Undercutting, so widely prevalent in the bituminous fields, has only limited application in the mining of anthracite due to the thin and pitching seams in many parts of the region. The tonnage cut by machine has continued to increase but comprised less than 4 percent of the total production in 1933. and 1934.

Since 1927 the tonnage of anthracite mechanically loaded has increased over 300 percent and is in part responsible for the increase in productivity per underground worker. Over 13 percent of the total production was mechanically mined in 1933. The output per man per day underground together with the tonnage and number of workers in underground mines are given in Table VI. A consistent increase in productivity is evident since 1926.

The tonnage of coal removed from strip pits has also shown a distinct upward trend and accounted for about 10 percent of the production in 1933. While stripping operations are generally feasible only in the shallower beds of the northern fields, the lower cost of this method of mining where it is applicable will undoubtedly result in a further increase, limited, however, by the small number of good locations.

No less important than improvements in mining efficiency are those which have been made in preparation. The construction of new central breakers as well as the modernization of old plants has continued through the depression. These improvements have resulted in a definite decrease in the proportion of surface men. In 1920 the men working on the surface comprised 30.3 percent of the total employees; in 1930 they were 21.3 percent (See Table VI). A slight increase since 1930 is due primarily to the low capacity of operations.

As a result of all of these factors, the average output per man per day increased from 2.09 tons in 1926 to 2.60 tons in 1933 (See Chart II). This 24 percent increase, while measured from a low point, is significant in that it marks the beginning of an upward trend which has since continued. In 1926 the industry began to take active steps to increase consumption by improving the merchandizing of anthracite and by modernizing the industry. To maintain anthracite's competitive situation, lower prices and costs are necessary and the program of modernization must be continued.

The labor productivity factor for 1933 was the highest recorded. The average annual rate of increase from 1926 to that year was 3.5 percent. If it is assumed that half of this rate of increase is maintained until 1940, the output per man per day could then be 2.90 net tons. This means that the man days required to mine an equivalent amount of hard coal will be 26 percent less than that required in 1926 and 10 percent less than that in 1933.

The factors which influence the consumption of anthracite are so numerous and so divergent that it becomes hazardous to predict quantitatively the future demand. On the basis of trends prior to the depression and analysis of factors affecting the domestic fuel situation, it is unlikely, however, that the average annual rate of production will exceed 60,000,000 tons in 1940. In considering this assumed production rate, it should be noted that it is only slightly above the tonnage mined in 1934, a depression year. Greater recovery is not expected because of the characteristics of the anthracite market. While anthracite showed a precipitate drop during the depression, the total demand for domestic fuel did not decrease greatly. The decline of anthracite, then, in the domestic market was chiefly the result of displacement by other fuels. The anthracite demand cannot be expected to recover with the upswing of business activity to the extent that the industrial demand for bituminous coal will expand.

On the basis of a production of 60,000,000 tons by 1940 and with an estimated labor productivity of 2.9 tons, 20,690,000 man days would be required as contrasted with 34,100,000 man days necessary to produce the 1929 tonnage. This decrease of 39 percent in the amount of labor required does not necessarily imply an equal decline in numbers employed. The number of men needed is determined by the days worked as well as by tonnage and labor productivity. The workers necessary to perform the 20,690,000 man days of labor would vary with the number of days worked per year as follows:

Average days worked per year	250	225	200	180
Number of employees	82,760	91,510	103,450	114,940

In 1929 the industry worked 225 days, but in 1933, the year of minimum employment and production, the collieries operated only 182 days. It is not probable that with a tonnage of 60,000,000 or less in 1940, that production would be so concentrated that the average number of days worked would be much in excess of 200. On the basis of 200 days, employment at that time would be 103,450, a decrease of 48,051 from the 1929 figure. In 1934, employment was 45,250 less than the 1929 level. It is therefore likely that the number needed by the industry over the next few years will remain from 40,000 to 50,000 below the 1929 quota(1). A group of this magnitude must be considered as permanently displaced from the industry.

In making this estimate, the intent is merely to indicate the magnitude of unemployment over the next few years, using conservative measurements. The estimate of 60,000,000 tons production in 1940 is regarded as a top limit, not as a tonnage prediction. Many in the industry feel that the tonnage will be considerably under this figure. The estimate of labor productivity is believed conservative since the increase is computed on the basis of only half the annual increase of the 1926-1929 period. The concentration of mining in the more efficient operations and in strip pits can affect the average labor productivity just as greatly as an actual increase in mechanized mining.

While the geological conditions in the Northern and Eastern Middle field are superior to the other fields, production has been so stimulated by these advantages that most of the easily accessible coal has been extracted in many of the operations in these areas. Exhaustion of the virgin coal has offset the natural advantages, so that the output per man per day is actually higher in the Southern field, although the Northern and Eastern Middle fields still hold a decided advantage in the percentage of domestic sizes recovered.

The trend of employment by counties as reported by the Pennsylvania Department of Mines is shown in Table IV. The greatest losses have been registered in Columbia, Dauphin, Northumberland and Schuylkill counties, in the Southern and Western Middle fields.

---

(1) "Bootleg" operatives have not been considered in these figures.

THE "BOOTLEG" COAL TRAFFIC:

As a result of the large number of unemployed miners in the region, an unprecedented situation has developed - the "bootleg" coal traffic - which is rapidly becoming a factor of importance.

Prior to the depression, it was common for the miners to help themselves to coal for their own use during periods of unemployment. It was but a step from this custom to the digging of coal for sale, when the ranks of the unemployed became greatly swelled. The disposal of this coal was made possible by the eagerness of the consuming public to secure cheap fuel and the ease of delivery through trucking. The practice has grown so rapidly and become so firmly entrenched that the "bootleg" tonnage is now estimated to range from 3,000,000 to 4,000,000 tons annually.

The area is thickly dotted with small "workings" on company lands. Usually no more than two or three men are engaged in a single operation and the methods are primitive. Crude preparation plants have been built along the roadside and the traffic is beginning to assume the characteristics of an "industry". Its extent is indicated from the following quotation from the editor of the "Black Diamond" (1):

> "It is conservatively estimated that there are more than 13,000 miners engaged in 'bootleg' operations; more than 5,000 engaged in trucking 'bootleg' to markets; more than 1,000 in preparation and sales and another 1000 in miscellaneous activities connected with the traffic of stolen anthracite - a total of 20,000 whose activities result in stealing more than 4,000,000 tons annually * * * * * *"

According to the Anthracite Institute (2), the major part of the "bootleg" tonnage moves from the Schuylkill area. Most of the coal is prepared, consisting of pea coal and larger sizes. This tonnage is, of course, not included in the official production figures, but if the estimated 4 million tons be added to the recorded 1934 production of 57 million tons, then "bootleg" would constitute 6.5 percent of that total. There is no doubt that this traffic is affecting the regular producers and the railroads of the region.

The "bootleg" operatives have not been considered as employed in this report, but no detailed study to determine their actual status has been made. The relationship of this situation with relief, the reasons for its continued existence, and the probable future developments can only be evaluated through a complete field investigation and analysis.

WAGES AND EARNINGS:

The declining production of anthracite has not only re-

---

(1) The Black Diamond, Sept. 14, 1935
(2) The Anthracite Institute, Survey of the Trucking of Anthracite, 1934.

sulted in loss of employment, but has also affected the earnings of the remaining employees through loss of working time. In the following table are given the indices of employment, payrolls and per capita weekly earnings from the Bureau of Labor Statistics and average annual wages as estimated in National Income, 1929-32 (1).

Year	Employment	Payrolls	Per Capita Weekly Earnings	Per Capita (1) Annual Earnings
1929	100.0	100.0	100.0	100.0
1930	93.4	95.3	102.0	99.3
1931	80.5	75.4	93.7	90.0
1932	62.5	53.7	85.9	85.0
1933	51.7	45.8	88.6	-
1934	59.6	55.9	93.8	-

While the average earnings of anthracite miners decreased 15 percent from 1929 to 1932, this was a less severe drop than in any of the other mining industries. For example, the per capita earnings in the bituminous coal industry decreased 47.2 percent. The average annual income also was higher in anthracite than in any other branch of the mining and quarrying industry with the exception of oil and gas, as shown in the following table (1). It should be pointed out, however, that the earnings of bituminous coal miners may possibly be affected by spreading of employment whereas in anthracite much less spreading of labor has taken place.

	1929	1930	1931	1932	Percent Decrease 1929-1932
Anthracite	$1,610	$1,599	$1,499	$1,368	15.0
Bituminous	1,253	1,091	866	662	47.2
Metal	1,541	1,445	1,158	912	40.8
Non-Metal	1,231	1,158	975	734	40.4
Oil and Gas	1,891	1,836	1,661	1,527	19.2

The above estimates were based upon employment as calculated from the Bureau of Labor Statistics index of employment. The average employment figures so obtained are somewhat lower than the total number on the payroll during the year as reported by the Bureau of Mines and as previously explained. As a result, the per capita income is higher than if the total number of employees who worked during the year had been used. On the basis of the total amount of wages paid, as reported in National Income, 1929-1932, and the number of employees as reported by the Bureau of Mines, the average per capita income in the anthracite industry would be as follows:

1929	$1,550
1930	1,440
1931	1,225
1932	1,030

---

(1) National Income, 1929-1932, p. 61, Government Printing Office, 1934.

It is obvious from these figures that the average anthracite worker is comparatively well paid and that the majority of those now working have ample income. Wage rates in the anthracite industry increased consistently from prior to 1900 up until 1923 and have been maintained throughout the depression. The general wage scale adopted in September 1923 is still in effect, having been extended in February 1926 and again in August 1930. By this scale, the hourly rate for all occupations averages from 80 to 85 cents, ranging from about $1.20 for contract miners to less than 50 cents for certain outside occupations.

The anthracite workers are almost completely unionized under the banner of the United Mine Workers of America which has been a potent factor in the industry since 1897. Like the bituminous industry, the history of anthracite labor relations has been studded with strikes and while in most cases these strikes may have resulted in the immediate betterment of the condition of the worker, they have been an important factor in hastening the decline of anthracite consumption through displacement by competing fuels during periods of interrupted supply. Since the great suspension of 1925-1926, however, when 170 days were lost, there has been no general strike. The rise of a rival union, the United Anthracite Miners, resulted in considerable strife in certain collieries of the Northern fields in 1934 and 1935, but this trouble has now been largely settled.

COST OF PRODUCTION:

No average data are available on the cost of production of anthracite since the report of the U.S. Coal Commission. For the year 1921 the Coal Commission reported the following average costs based upon the records of forty-eight operating companies(1):

	Amount per Net Ton(a)	Percent of Total F.O.B. Mine Cost
Labor	$3.62	69.7
Supplies	.79	15.2
Royalty	.13	2.5
Depletion	.15	2.9
Amortization & Depreciation	.11	2.1
Taxes	.20	3.9
Insurance, Compensation	.06	1.2
Other	.13	2.5
Total F.O.B. Mine Cost	$5.19	100.0

(a) Converted to net ton basis

The only wage change effective since these costs were determined was an increase of 10 percent in 1923. This would add approximately 35 cents per net ton to the labor cost. It must be pointed out, however, that this cost analysis was made at a time when conditions were quite dif-

---

(1) Report of the U.S. Coal Commission, Part II, p. 867.

ferent from the present, and that it should be regarded as indicative only. The average values reported in recent years ranging from four to five dollars per net ton indicate that average costs have decreased materially since the 1921 estimates. Also, concealed by the average, are extensive variations in costs between fields and operations, and differences influenced by such factors as volume of production, size of operations, and extent of mechanization. The decrease in average cost is the result of abandonment of high cost mines, concentration of mining in the better low cost veins, increase in stripping operations, and the general increase in operating efficiency.

Labor is the outstanding item in the cost of mining anthracite, amounting to about 70 percent of the total. Supplies comprise approximately 15 percent and the remaining 15 percent is made up of the capital costs - depletion, depreciation, and royalties - together with taxes, insurance and general operating expenses. While cost analyses for recent years are not available, it is interesting to note the uniformity in the percentage of total cost accounted for by the various items, particularly the labor cost, as reported for thirteen identical companies for the years 1913 to 1922 and for the first quarter of 1923(1).

	Costs Per Gross Ton						
	Labor		Supplies		General Expense		
Year	Amount	Percent	Amount	Percent	Amount	Percent	Total
1913	$1.62	70.4	$0.35	15.2	$0.33	14.4	$2.30
1914	1.62	70.7	.32	14.0	.35	15.3	2.29
1915	1.63	71.2	.31	13.5	.35	15.3	2.29
1916	1.75	69.5	.35	13.9	.42	16.6	2.52
1917	1.97	69.4	.47	16.3	.44	15.3	2.88
1918	2.67	70.0	.65	17.1	.49	12.9	3.81
1919	3.36	70.3	.76	15.9	.66	13.8	4.78
1920	3.93	70.1	.87	15.5	.81	14.4	5.61
1921	4.04	70.1	.88	15.3	.84	14.6	5.76
1922(a)	4.38	68.0	.86	13.4	1.20	18.6	6.44
1923(b)	3.97	70.8	.72	12.8	.92	16.4	5.61

(a) Year of general strike
(b) First Quarter

It may thus be seen that while the labor cost increased 145 percent within the period, the remaining items increased in about the same proportion so that the increase in total mine cost was 144 percent. This constant ratio of labor to total cost has also been evident in some cases in the bituminous industry from cost figures submitted to the N.R.A. While it might be unsafe to use this relationship generally in the coal industry, in every case studied where an identical series could be obtained, the ratio of labor cost to the reported total "book" cost was substantially constant.

The greater part of the investment of the anthracite operators consists of coal bearing lands, and in the case of a number of companies, lands are held which cannot be developed for some generations to come, and

---

(1) Report of the U.S. Coal Commission, Part II, p.856.

the carrying charges become a serious burden. The taxes on such lands are charged to operating costs, although the interest must come out of the operators' margin. The Coal Commission reported the total fixed costs of the anthracite companies in 1922 as carried on the books at $256,247,510(1) of which $150,251,821 or 59 percent was in coal lands.

In order to maintain anthracite's competitive position, prices for many grades must be lowered substantially. The present policies now being pursued should result in greater efficiency and lower costs and enable operators to reduce prices at the mines, although it is generally contended that material savings are not possible under the present wage scale. The separation of excessive coal lands might permit the operators to sell coal at lower prices without loss, although such procedure at the present time might be extremely difficult to accomplish.

TRANSPORTATION:

As in the case of bituminous coal, the transportation of anthracite comprises a large item in the consumer cost. The Coal Commission found that freight alone took from 16 to 27 cents of the consumer's dollar in the eastern cities, and up to 40 cents in mid-western markets. The high freight expense to distant points has resulted in the restriction of the marketing territory. However, an investigation of anthracite freight rates by the Interstate Commerce Commission, 1925(2) showed that the rates were not unreasonable in view of railway operating costs.

The following table shows the tons of originating revenue anthracite freight, the total revenue received by the railroads, and the revenue per net ton for the years 1929 to 1934 inclusive as reported by the Interstate Commerce Commission(3). The mine value of the coal and the percent the revenue is of the mine value is also shown:

Year	Anthracite Freight Net Tons Originated Thousands	Total Revenue Received Thousands Dollars	Revenue Per Ton Originated Dollars	Value(a) Per Ton Dollars	Percentage Revenue of Value
1929	71,922	$162,922	$2.27	$5.22	43.5
1930	71,251	151,892	2.13	5.11	41.7
1931	65,673	129,268	1.97	4.97	39.6
1932	55,681	108,350	1.94	4.46	43.5
1933	56,467	100,713	1.78	4.17	43.0
1934	68,630	111,891	1.63	4.24	38.4

(a) U.S. Bureau of Mines

The decreasing freight cost per ton reflects the decline in the length of haul and also to some extent decreases in freight rates. While there has been no general rate revision in recent years with the exception of

---

(1) Reserves for depletion, depreciation, and amortization deducted.
(2) Anthracite Rate Investigation, 101 I.C.C. 363, July 1925
(3) Freight Commodity Statistics, Interstate Commerce Commission. Originating tonnage includes some duplications, and some hard coal outside of Pennsylvania.

the emergency increases granted in March 1935 amounting to from 3 to 15 cents per net ton, numerous specific reductions have taken place, many of them being seasonal in nature. For example, rates on anthracite to Philadelphia were reduced from 18 cents to 43 cents per ton in 1935, effective from May 15th to October 31st.

The calculated revenue per ton shown in the above table is effected by local haulage within the region and consequently does not show the full amount of freight paid by consumers in market centers such as New York and Philadelphia. At these points the freight cost averages from 20 to 25 percent of the sales price for the domestic sizes.

The trucking of anthracite has become a factor of major importance in the past few years. It is estimated that the amount of coal trucked in 1934 was about 6,000,000 tons(1) and that approximately 35 percent of this tonnage moved out of the state. About half of the truck tonnage was estimated to be "bootleg" or coal illegally taken from company lands. The average cost per ton mile for trucking ranges from 3 to 3.5 cents(2) and for short hauls is much cheaper than railway transportation. The greatest saving to the consumer, however, and one of the principal reasons for the existence of this flourishing trade lies in the mine-to-house system of distribution, eliminating in large part wholesale and retail profit and extra charges for handling. Its principal disadvantages, aside from the outlet given to "bootleg" operations, lie in the harm done to the railroads whose very existence depends upon anthracite traffic, the congestion of the highways, and the destruction of the established retail business. On the other hand, if the "bootleg" traffic can be stamped out, the lower consumer cost resulting from trucking of coal might be equally advantageous to producers and users, although the railroads and retailers may suffer.

The welfare of the railroads, however, must be considered in any study of the anthracite region. In the following table are given the percentages of the total originating freight and total freight revenue accounted for by the anthracite traffic on the principal hard coal roads in 1929 and 1934(3):

Railroad	Percent Anthracite of Total Originating Freight Tonnage 1929	1934	Percent Anthracite Revenue Of Total Revenue 1929	1934
Del. & Hudson	78.1	82.4	40.2	40.7
Del. Lack & Western	56.5	54.5	32.1	31.4
Erie	37.4	46.8	16.3	14.9
Lehigh & New Eng.	60.9	77.4	64.1	55.0
Lehigh Valley	59.1	67.6	31.4	36.0
N.Y. Ont.& Western	70.8	93.2	44.2	69.6
Central R.R. of N.J.	36.3	47.1	27.4	38.4
Reading Co.	49.3	77.9	24.3	37.8
Total (a)	52.8	67.9	27.4	31.7

(a) The Pennsylvania R.R. originates about 10% of the anthracite tonnage, but hard coal comprises only 5-10% of the road's total. It has not been included due to inability to segregate the divisions in the anthracite regions.

---

(1) The Anthracite Institute, Survey of the Trucking of Anthracite 1934.
(2) Fed. Coordinator of Transportation, Merchandise Traffic Rept., Motor Truck Inq.
(3) Freight Commodity Statistics, Interstate Commerce Commission.

These eight roads in 1929 originated 88.8 percent of the total anthracite shipped by rail. Their dependence upon hard coal traffic is evident. While the tonnage and revenue of all items decreased from 1929 to 1934, anthracite traffic did not decline as much as other freight, and in 1934 comprised two-thirds of the tonnage and one-third of the freight revenue.

It has been estimated that 54,000 railway employees on all roads were dependent upon rail shipment of anthracite in 1929(1). Of this number, approximately one-fifth are in the anthracite region(2). The estimated unemployment due to the decrease in hard coal traffic was 12,000 in 1933; using the same proportion as for 1929, there would be 2,500 railroad workers unemployed in the anthracite region. While this is a rough approximation, it is indicative of the relationship between the anthracite traffic and railway employment within the region.

VALUE AND PRICE:

The total value of anthracite production reached a peak of 506.8 million dollars in 1923 during a period of rising prices. Since that time the value has dropped, reaching a low of 206.7 million dollars in 1933 (See Table VII). The peak value per net ton(3) at the mine of $5.62 was reached in 1926, culminating a rapid and consistent rise since 1914 amounting to 170 percent. Since the high of 1926, the average value dropped to $4.17 in 1933.

The trend in the price of coal since 1923 may be seen from the following table showing average sales realizations(4):

Average Sales Realization Per Net Ton

Year	Domestic Sizes	Steam Sizes	Total
1923	$7.35	$2.36	$6.04
1924	7.36	2.01	5.98
1925	7.41	1.79	5.88
1926	7.74	1.73	6.11
1927	7.44	1.77	5.80
1928	7.22	1.89	5.70
1929	7.14	1.82	5.63
1930	7.05	1.87	5.52
1931	6.87	2.00	5.35
1932	6.09	1.98	4.74
1933	5.78	1.93	4.46
1934	5.80	1.98	4.53

---

(1) The Bituminous Coal Industry With A Survey of Competing Fuels, F.E.R.A. 1935

(2) Total R.R. employment in ten anthracite counties in 1929 was 31,360. Assuming 70% allocated to freight and 50% of these to anthracite, about 11,000 are dependent upon anthracite traffic.

(3) Average value of all coal mined, whether sold or not, excluding selling expense.

(4) U.S. Bureau of Mines, Annual reports, Coal.

While all prices have declined slightly since 1926, part of the drop in the averages shown above is due to increased consumption of the cheaper sizes and the consequent decreased proportion of the more expensive grades. With the present trend to automatic burning, requiring the smaller sizes of coal, the necessity for an upward revision of prices for these sizes is apparent. The problem is complicated because a considerable amount of this coal is now being used in industrial boilers. Any material increase in the prices of buckwheat, rice or barley coal would send industrial users of these sizes to other fuels, and the domestic market at present could not absorb this tonnage. The change, therefore, cannot be made abruptly. With the greater production of silt resulting from crushing to produce smaller coal, the industry must also solve the technical problems of preparation and utilization of this silt so that it can be supplied to industrial users at a price to compete with other steam generating fuels.

The price trends in each size may be seen from the following table of average sales realizations in recent years:

	Average Mine Realization Per Net Ton				
Size	1923	1927	1929	1931	1933
Broken	7.01	7.30	7.08	6.74	5.43
Egg	7.58	7.46	7.30	7.01	5.90
Stove	7.66	7.92	7.79	7.37	6.25
Chestnut	7.62	7.48	7.37	7.21	5.95
Pea	5.52	5.27	4.16	4.76	4.22
Buckwheat No. 1	3.11	2.29	2.35	2.79	2.84
Buckwheat No. 2 (Rice)	1.99	1.59	1.58	1.52	1.50
Buckwheat No. 3 (Barley)	1.21	1.18	1.19	1.03	1.00

These figures show the greatest drop in price for the larger sizes, and the increasing trend of prices for buckwheat No. 1, which is being used in increasing amounts in domestic stokers.

The control of a large proportion of anthracite production by a few large companies has permitted the avoidance of the consequences which usually attend a declining demand, and a "cut-throat" price situation has been avoided.

The spread between the mine and retail prices of anthracite may be seen by comparing the average mine price per net ton of Chestnut coal, the most commonly used domestic size, with the average retail price as reported by the Bureau of Labor Statistics:

Year	Average Mine Price	Average Retail Prices High (a)	Low(a)
1930	$7.25	$15.00	$14.32
1931	7.21	14.97	14.19
1932	6.26	14.97	13.11
1933	5.95	13.61	12.00

(a) The monthly high or low price. Highest prices are usually in December or January; lowest in May and June.

This shows that the mine price comprises only about 50 percent of the total cost to the consumer, the remainder being absorbed by freight charges and the share of the dealer. The U. S. Coal Commission, on the basis of an investigation covering nine cities for the years 1920, 1921 and 1922, showed that from 15 to 32 cents of every dollar spent for anthracite remained with the local dealer, or possibly in part with a wholesaler, 18 to 40 cents went to pay freight charges, and between 45 to 60 cents went to the producer.

THE COMPETITIVE POSITION OF ANTHRACITE:

Anthracite is almost exclusively a domestic fuel; it cannot compete in other markets except to a limited extent. The decline in anthracite consumption, however, is not the result of a material decline in the total domestic market but rather of a substitution of other forms of fuel in domestic use. While every attempt is now being made to stem the tide, for many years few efforts were made to increase the efficiency of production; the increased wages demanded by labor resulted in higher prices; the supply was frequently interrupted by strikes; the quality was not always maintained; and few attempts were made to relieve anthracite users from inconveniences attendant upon the burning of hard coal. As a result, thousands of users turned to substitutes such as fuel oil, gas, coke, or bituminous coal, which were either more convenient or less costly. When the anthracite operators awoke to the fact that wholesale substitution was imminent, and embarked upon a program of modernization and aggressive sales effort, they found that they were fighting an uphill battle.

In 1929 approximately 74.4 percent of the anthracite was used in domestic and commercial heating(1), 13.6 percent in manufactures, 4.6 percent by the railroads, and 7.4 percent as colliery fuel. The consumption of anthracite by these various uses during the period 1919 to 1933 is shown in Table VII. The proportion used in domestic and commercial heating has continued to increase and the proportion of other uses has decreased as shown in the following table:

---

(1) Obtained by subtracting colliery, railroad and manufacturing fuel from total consumption; contains a small amount used by electric utilities and miscellaneous consumers.

	Consumption - Millions of Net Tons								
ear	Colliery Fuel	Percent	Manufactures	Percent	Railroads	Percent	Domestic & Other	Percent	Total
919	9.6	11.8	15.3	18.8	5.0	6.1	51.6	63.3	81.5
923	7.8	9.0	13.9	16.0	4.4	5.1	60.8	69.9	86.9
927	6.6	8.8	10.9	14.6	3.5	4.7	53.7	71.9	74.7
929	5.3	7.4	9.7	13.6	3.3	4.6	53.2	74.4	71.5
933	3.0	6.1	-	-	1.5	3.0	-	-	49.6

The chief reason for industrial use is that the small coal, a ecessary result of the mining and preparation process, must be sold at rices competitive with bituminous coal. The adoption of heating installa- ions for burning these small sizes has steadily reduced the amount going nto non-heating uses. Thus, anthracite is being more narrowly restricted to he domestic field.

In addition to the growing restriction in use, the geographical istribution of anthracite is being limited. Referring to Table VIII, the istribution of anthracite for the coal years 1916-17 and 1928-29 is com- ared. The proportion of coal shipped to the North Central and Lake Dock tates has decreased by 50 percent; New England took about the same propor- ion in 1929 as it did in 1917; and the "local" market, New York, New Jersey, ennsylvania, Delaware, Maryland and the District of Columbia, used 71.2 per- ent in 1928-29 as against 59.9 percent in 1916-17. Exports, chiefly to anada show a decided decrease. The keen competition of fuel oil and coke n distant markets, where the retail prices of anthracite are the highest, as resulted in a gradual shrinkage in the market area for this kind of coal, o that for all practical purposes freight expenses prohibit the sale of sub- tantial quantities of hard coal anywhere but in the Northeastern states.

Referring to Table IX showing trends in distribution, shipments o New England, exports, Lake Erie loadings and colliery fuel all show aterial losses in tonnage between 1920 and 1929. Coal sold to the local rade and used by employees has remained constant. The decrease in New Eng- and may be attributed in part to the declining use in manufacturing as shown y the Census of Manufactures, from 1.7 million tons in 1919 to 0.8 million n 1929, and also to the increase in the importation of foreign anthracite.

A significant factor has been the sustained demand in those tates immediately surrounding the anthracite fields. These states, as shown n Table VIII, consumed(1) 48,152,000 tons in 1916-17 and 48,502,000 tons in 928-29. However, the per-capita consumption for this area, using the popula- ion figures of 1920 and 1930, decreased from 1.98 tons to 1.69 tons.

In summing up the changes, the major losses have resulted from decrease in industrial, colliery, and railroad consumption and a contraction f distant domestic markets. In the local market, the decline in manufacturing

---

(1) Excluding colliery fuel in Pennsylvania, and all railroad fuel.

consumption has been offset by a corresponding increase in domestic fuel sales, principally in the smaller sizes.

While the total consumption of anthracite dropped from 80.7 million tons in 1924 to 49.6 million tons in 1933 (See Table VI), a decrease of 38.6 percent, the other domestic fuels increased. By-product and beehive coke sold for domestic purposes showed an increase from 2,952,000 net tons in 1924 to 10,491,000 tons in 1933, an increase of over 250 percent. Light fuel oils, excluding range oils and commercial heating oils, have increased 570 percent since 1924 and in 1933 were equivalent to approximately 7.6 million net tons of coal (1). Natural gas consumed for domestic and commercial heating increased about 33 percent between 1924 and 1932, but showed a slight drop in 1933. Its coal equivalent in 1933 was approximately 14.8 million net tons (2). These changes are shown graphically in Chart VII. The detailed data for the known items in the domestic fuel supply is shown by Table X. The blind spot in the domestic market is bituminous coal. The Bureau of Mines estimates the annual consumption at between 55 and 77 million tons, but actual data to indicate both the amount and the trend are lacking. It is generally believed, however, that a material amount of anthracite has been displaced by bituminous coal.

The increase in the consumption of these competitive fuels has by no means taken place entirely at the expense of anthracite. Much of the increase has been attained in regions entirely outside of the anthracite market area, and in special uses in which anthracite has slight chance of competing. It is interesting to note, however, the increasing consumption of fuel oil for heating purposes in the states comprising the local market for Pennsylvania anthracite, and also in New England.

Fuel and Gas Oil Consumed in Commercial and Domestic Heating (3)

Region or State	Thousands of Barrels 1926	1927	1928	1929	Percent Increase 1926-29
Pennsylvania	1,529	1,556	1,666	2,192	44
New York	2,561	3,131	3,467	3,414	33
New Jersey	330	832	727	747	126
Del. Md. & D.C.	292	482	613	875	200
New England	3,151	3,601	3,189	3,423	9

In Massachusetts where the State Division for the Necessaries of Life compiles statistics on domestic fuels, anthracite is being displaced by fuel oil and coke. From the coal year 1926-27 to 1933-34, the consumption of anthracite decreased 39 percent while coke increased 160 percent and oil

---

(1) Calculated on the basis of light fuel oil (35°A.P.I.) at about 5,792,000 BTU per bbl. and coal at 13,000 BTU per lb. This gives the theoretical equivalent of 4.5 bbls. per net ton of coal. Differences in efficiency between oil and coal in domestic heating depend almost entirely on the equipment and it is doubtful if the large majority of oil burners in use exceed the efficiency of coal burning installations by any large margin.

(2) Conversion equivalent: 25,000 cubic feet = 1 net ton.

(3) U. S. Bureau of Mines, Nat'l. Survey of Fuel Oil Distribution, 1926-29.

730 percent In 1926-27 anthracite comprised about 77 percent of the total domestic fuel; in 1933-34 it was approximately 40 percent.

In the table below are given the values of fuel oil, natural gas and manufactured gas corresponding to various anthracite prices, calculated on a straight thermal equivalent basis:

Anthracite (Price Per Net Ton)	35° Fuel Oil (Cents Per Gallon)	Natural Gas (1050 BTU) (Cents per M.C.F.)	Mfd. Gas (550 BTU) (Cents per M.C.F.)
$6.00	3.2¢	24.0¢	12.6¢
8.00	4.2	32.0	16.8
10.00	5.3	40.0	21.0
12.00	6.3	48.0	25.2

It may thus be seen that to compete on a straight heat value basis with $10 anthracite, oil would have to be sold at 5.3 cents per gallon, natural gas at 40 cents per M.C.F. and manufactured gas at 21 cents. In this tabulation no differences in efficiency have been taken into account since the type of heating equipment used is a greater factor in heating efficiency than any inherent quality of the fuel.

A comparison of recent retail prices for fuel oil and chestnut size anthracite indicates that the price per therm (100,000 B.T.U.) is only slightly higher in the case of fuel oil.

City	Anthracite Chestnut Per Net Ton(a)	Per 100,000 BTU	No. 2 Furnace Oil Per Gal.(b)	Per 100,000 BTU
Boston	$11.90	4.58¢	6.25¢	4.53¢
New York	10.56	4.06	6.25	4.53
Philadelphia	9.00	3.46	5.50	3.99
Washington	10.49	4.03	6.50	4.71

(a) Bureau of Labor Statistics, July 1935
(b) Quoted tank-wagon prices, Aug. 12, 1935

It should be pointed out, however, that the cheaper sizes of anthracite, pea and buckwheat, are also being utilized for domestic fuel and are priced from one to three dollars per ton lower. When such sizes are used, the per therm price advantage as compared to oil is increased materially.

The extent of bituminous coal competition in the domestic field within the anthracite market territory is difficult to ascertain. Prices vary according to grades and sizes, but in general they range from two to five dollars less per ton than anthracite.

By-product coke is becoming an important domestic fuel as shown on Chart VII. The Bureau of Mines reports a total domestic consumption of 6,826,694 tons in 1929, of which 45 percent was consumed in New England and

he states surrounding the anthracite fields, as shown by the following dis-
ribution (1) for that year:

arket	Domestic Coke Consumption Thousands Net Tons	Percent of Total Domestic Coke Consumption
ew England	1,344	19.7
ew York	1,263	18.5
ew Jersey	213	3.1
ennsylvania	250	3.7
i. Del. & D.C.	13	.2
ll Other States	3,744	54.8
Total	6,827	100.0

The retail prices of coke for domestic use are usually slight-
y less than the prices for corresponding sizes of anthracite, and coke can
erefore compete effectively on a consumer cost basis.

While the use of manufactured gas for house-heating purposes
s increasing, the cost of gas makes such a convenience highly expensive,
nd therefore its utilization is limited. Straight natural gas is not dis-
ributed to any material extent in the eastern anthracite territory, but
n the rapidly dwindling western market, it can compete favorably on a
rice basis with hard coal.

Anthracite occupies a middle position in the domestic fuel
arket. In general, oil and gas are rather more convenient but more costly.
tuminous coal and coke are less desirable from the standpoint of con-
enience and cleanliness, but are generally cheaper than anthracite.

The aggressive policies pursued by the anthracite industry
r the past ten years has resulted in the development of almost completely
tomatic heating equipment, but a similar development in equipment for soft
al and coke removes some of the most undesirable features in connection with
e use of those fuels. In any case the installation of automatic heat
cessitates a capital investment, whether for solid or liquid fuel; coal
ckers and oil burners are in the same price range. The rate of moderniza-
on of heating equipment in a community is influenced, if not controlled,
the average per capita earnings in that community. The selection of fuel
ll depend largely upon relative convenience and operating cost, as well as
on numerous indirect factors such as sales persuasion. From the standpoint
convenience and cleanliness, anthracite can boast of no advantages over
l, so that its appeal must be made almost entirely on the basis of lower
st to the consumer. Furthermore, the difference in cost between anthracite
d bituminous coal and coke must no more than offset the advantages of the
emium fuel. The cost of heating depends upon efficiency of fuel utiliza-
on as well as unit price, and it is doubtful if the inherent heating

---

.) Distribution of By-Product and Beehive Coke, and Fuel Briquets - F.G. Tryon and W.H. Young, U.S. Bureau of Mines, Sept. 21, 1931.

efficiency of anthracite could be generally considered greater than that of other fuels. The competitive position of hard coal, then, depends almost solely on price, and the present trend to lower prices is a step in the right direction.

THE FUEL OIL SUPPLY:

In the preceding pages it has been shown that fuel oil is one of the principal competitors of anthracite in the domestic market, and that its advantage lies chiefly in greater convenience at only slightly increased cost. The average consumer will pay only a certain differential for the convenience of liquid fuel; above that differential, he will turn to a cheaper product. For this reason the supply and price of fuel oil is of the utmost importance to the anthracite industry.

The question of a possible oil shortage in this country within the next ten or fifteen years and its effect upon prices is highly controversial. In a report (1) made public by the American Chemical Society in 1934 it was stated that "There is abundant evidence that we may expect a shortage of petroleum sufficient to necessitate a marked increase in our imoorts and a considerable increase in the petroleum price structure within five to eight years". On the other hand, it is contended that no actual shortage is imminent and that even if no new pools are discovered, the demand can be supplied through new methods of production without greatly increased costs. In view of such divergent opinions, no estimate of trends of fuel oil prices can be safely made, and while there may be a tendency to higher prices evident from today's viewpoint, its extent cannot be predicted.

The increasing use of Diesel fuel has also been cited as a factor tending to raise the price of fuel oil, but the opposite view is expressed in an article (2) in the Oil and Gas Journal that "an increased demand for the straight-run furnace oils would have very little effect (on the price) if any, up to the point where the usage of Diesel fuel would amount to about 30 percent of total gasoline volume".

There is, therefore, little evidence to support the conclusion that anthracite will recover markets previously lost to fuel oil, due to increased oil prices. While oil prices may rise and materially slow down the present trend of anthracite displacement, it is not believed probable that the increase will be sufficient to cause substantial reversion from liquid to solid fuel for a long time to come.

IMPORTS AND EXPORTS:

The amount of anthracite imported into the United States amounts to approximately one to two percent of the total consumption. Most of this

---

(1) Oil and Gas Journal, Aug. 22, 1935; p. 13
(2) Joseph Geschelin, Oil & Gas Journal, Nov. 15, 1934; p. 117.

coal comes from Great Britain and Soviet Russia and over 70 percent enters the country at the port of Boston. The record of imports from 1927 to 1934 is shown below, together with exports:

Year	Net Tons Imported	Net Tons Exported
1927	119,030	3,325,507
1928	384,707	3,336,272
1929	487,172	3,406,369
1930	674,812	2,551,159
1931	637,951	1,778,308
1932	607,097	1,303,355
1933	456,252	1,034,562
1934	478,118	1,297,582

The Massachusetts Division for the Necessaries of Life stated that in 1929 foreign anthracite could be laid down in Boston at a lower cost than the domestic product. With the declining prices of domestic anthracite, however, it is doubtful if the imported fuel will constitute an important competitive factor, and the volume of foreign tonnage has been generally downward since 1930.

The shrinkage of the export market is the result of a number of factors which point to the eventual extinction of this outlet for hard coal. Over 95 percent of the anthracite exported moves to Canada, which, prior to 1930, consumed about 4 to 5 percent of the total production. In 1933 and 1934 Canadian exports comprised less than 2½ percent of the domestic output. The Canadian government has been actively promoting the utilization of Canadian and British Empire fuel by the granting of subsidies to the domestic coal industry and the imposition of a tariff on imports from countries outside of the Empire. The consumption of coke has been encouraged and although no figures are available showing the amount used for domestic purposes, it is likely that this fuel will be used most extensively to replace anthracite.

STIMULATION OF ANTHRACITE CONSUMPTION:

As previously pointed out, the greatest stimulus to the consumption of anthracite lies in a material reduction in the cost to the consumer. To obtain this end, the industry is vigorously pressing forward in the direction of increased operating efficiency, lower distribution costs, cheaper and better combustion equipment, and superior consumer service. Active research is under way to enable utilization of silt or fine coal, heretofore wasted in the preparation process, and to develop other uses for the various grades of anthracite. The largest volume of anthracite at the present time is used in the heating of buildings, but other markets of greater or less importance may be considered as possible outlets. While the depression undoubtedly stimulated the use of such cheaper fuels as soft coal at the expense of anthracite, it also enabled anthracite to displace more expensive fuels in many cases where no substantial investment was required. As an example of this substitution, many householders reverted to the use of hard coal for domestic water heating in place of manufactured gas. This was obviously a pure economy measure, but

one which may be partly retained even upon the return of prosperity, and particularly if encouraged by the introduction of improved equipment, and backed by aggressive sales effort.

The recent introduction of an automatic solid fuel cooking range of high efficiency has caused widespread interest, but extensive application is unlikely due to its relatively high initial cost. Anthracite has also been used successfully as a water filtering medium, but the amount which could be utilized for this purpose is small as compared with the total produced. Another field lies in the production of manufactured gas, but this, again, offers only a very limited market.

While cognizant of the fact that anthracite has been largely displaced as industrial fuel, its elimination from this field has been primarily due to its high cost. It is manifestly impossible to produce anthracite as cheaply as bituminous coal and hence competition in the industrial market is only feasible within or immediately adjacent to the hard coal producing areas, and is even there restricted to the smaller and cheaper sizes. While presenting many technical difficulties both from the standpoint of preparation and utilization, the research now being conducted to develop silt as an industrial fuel offers some promise. The material must be kept sufficiently low in price to compete with other steam generating fuels, but at the same time, its effective utilization might restrict losses in the standard grades. The further stimulation of the industrial use of anthracite by these measures offers some possibility of increasing consumption.

AN APPROACH TO THE PROBLEM OF REHABILITATION OF THE ANTHRACITE REGION:

This study has indicated that there is slight chance of anthracite recovering its former place in the fuel markets of the country, and that while the present downward trend may possibly be interrupted, stabilization will be at a lower level than that of 1920-1929. On the basis of this assumption and also taking into consideration the technological displacement resulting from modernization of operations, the employment quota of the industry will be from 40,000 to 50,000 less than in 1929. Some provision from the long-time standpoint must be made for this large group of permanently displaced labor.

A consideration of the problem leads to the conclusion that employment must be found for these workers within the region. Mass movement of population from the area would scarcely be feasible in view of the tenacious desire of these people to remain near the mines, and the fact that a large proportion own their own homes. Agricultural employment in a scale sufficient to provide for any material number is not available, as unoccupied productive land is scarce.

In view of these conditions, two possible plans for rehabilitation are suggested - the encouragement of other industries to locate within the region, or a permanent plan for the spreading of employment in the anthracite industry to care for those now unemployed.

The first suggestion may be impossible of accomplishment but would seem the most desirable. The anthracite region is primarily a one-industry section and for economic stability requires other opportunities for employment. It is admirably suited to further industrial development, being close to eastern consuming centers, having excellent transportation facilities and ample labor supply. On the other hand, the cost of labor may be higher than in other sections. The location of additional manufacturing plants in the region, preferably of the consumable goods type, would have to be encouraged by the offering of substantial inducements. Such a course, however, would have the obvious disadvantage of taking employment opportunity from other sections, but might possibly provide more employment in the anthracite mines if these industries could utilize hard coal.

Any plan for the spreading of employment without wage increase has the obvious disadvantage of decreasing individual earnings and lowering the standard of living of all employees, as well as introducing practical difficulties in operations. If put into effect, it would therefore need to be accompanied by the provision of some opportunity for supplementary income, as further wage increases at this time would be suicidal.

These suggestions have been advanced not as a final solution of the problem, but as plans most worthy to invite further research and investigation.

TABLES

A-1

TABLE I

INDUSTRIAL EMPLOYMENT BREAKDOWN OF THE

PENNSYLVANIA ANTHRACITE SECTION

Based on the 15th Census of the U.S. - 1930

		Gainfully Employed		Service Workers				Agricultural Workers		Industrial Non-Service Workers		Vital Industries of Section							
												Coal Mines		Textiles		Iron & Steel		Building	
COUNTY	Population	Total Emp.	% of Pop.	Number Workers	% of Total Emp.	Wholesale and Retail Trade	Transportation & Communications	Number Workers	% of Total Emp.	Number Workers	% of Total Emp.	Number Workers	% of Non-Service	Number Workers	% of Non-Service	Number Workers	% of Non-Service	Number Workers	% of Non-Service
Carbon	63,380	21,669	34.2	8,066	37.3	1,578	2,990	947	4.4	12,656	58.3	5,298	41.9	1,987	15.7	706	5.6	635	5.0
Columbia	48,803	17,214	35.3	5,325	30.9	1,356	763	3,328	19.3	8,561	49.8	1,678	19.6	2,306	27.0	2,682	31.4	609	7.1
Dauphin (Excl. Harrisburg)	84,892	30,207	35.6	11,224	37.2	2,334	2,890	3,383	11.2	15,600	51.6	2,496	16.0	448	2.9	5,503	35.3	1,468	9.4
Lackawanna	310,397	112,994	36.0	48,067	42.5	14,076	8,781	2,373	2.1	62,554	55.4	37,025	59.2	7,780	12.4	3,623	5.8	4,418	7.1
Luzerne	445,109	158,364	35.6	54,057	34.2	16,856	8,760	3,956	2.5	100,351	63.3	63,986	63.9	12,826	12.8	4,289	4.3	5,510	5.5
Northumberland	128,504	45,094	35.1	15,797	35.0	4,316	3,672	3,284	7.3	26,013	57.7	12,998	49.9	5,235	20.1	1,436	5.5	1,681	6.5
Schuylkill	235,505	82,772	35.2	25,823	31.2	7,262	5,836	3,650	4.4	53,299	64.4	36,028	67.6	1,764	3.3	2,353	4.4	2,491	4.7
Sullivan	7,499	2,607	34.7	699	26.8	137	96	941	36.1	967	37.1	507	52.5	44	4.6	9	1.0	82	0.8
Susquehanna	33,806	11,993	35.4	4,476	37.3	466	690	4,285	35.7	3,232	27.0	1,127	34.9	160	5.0	439	13.6	374	11.6
Wayne	28,420	10,663	37.5	3,462	32.5	766	482	4,014	37.6	3,187	29.9	284	8.9	613	19.2	275	8.6	431	13.5
TOTAL	1,386,315	493,577	35.6	176,996	35.8	49,547	34,960	30,161	6.1	286,420	58.1	161,427	56.3	33,163	11.6	21,313	7.4	17,699	6.2

WORKS PROGRESS ADMINISTRATION
SECTIONAL ECONOMIC RESEARCH

RELIEF STATISTICS

	1934							1935					
COUNTY	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Averages
CARBON													
Number of Persons	8,108	6,245	7,619	6,650	6,018	7,372	7,886	8,484	8,636	10,501	17,260	19,025	9,565
Number of Cases*	1,866	1,402	1,670	1,535	1,594	1,679	1,846	2,003	2,025	2,351	3,702	4,063	
Percent of Population	12.8	9.9	12.0	10.5	11.1	11.6	12.4	13.4	13.6	16.6	27.2	30.0	15.1
Relief Expended	$44,610	$41,212	$45,410	$38,434	$50,381	$50,685	$73,261	$77,796	$92,538	$72,648	$124,010	$104,851	$67,970
COLUMBIA													
Number of Persons	12,561	10,518	10,095	10,852	12,015	12,832	14,317	15,185	16,471	17,178	17,095	16,154	13,773
Number of Cases*	2,534	2,047	1,959	2,100	2,331	2,524	2,908	3,111	3,365	3,528	3,500	3,290	
Percent of Population	25.7	21.6	20.7	22.2	24.6	26.3	29.3	31.1	33.7	35.2	35.0	33.1	28.2
Relief Expended	$60,823	$44,261	$50,536	$39,482	$59,383	$85,072	$92,492	$114,209	$125,771	$119,852	$124,953	$108,958	$85,483
DAUPHIN													
Number of Persons	24,808	21,521	22,947	21,671	22,217	23,309	25,641	27,731	28,360	28,666	28,053	26,835	25,146
Number of Cases*	6,166	5,539	5,922	5,557	5,739	5,998	6,592	7,071	7,524	7,425	7,195	6,895	
Percent of Population	15.0	13.0	13.9	13.1	13.4	14.1	15.5	16.8	17.2	17.3	17.0	16.2	15.2
Relief Expended	$124,422	$122,390	$134,310	$89,238	$144,180	$181,822	$203,839	$235,929	$205,684	$223,407	$239,673	$203,522	$180,551
LACKAWANNA													
Number of Persons	63,601	66,014	82,127	74,569	66,870	65,161	66,875	67,883	69,723	70,346	80,447	81,474	71,258
Number of Cases*	14,634	15,116	18,419	16,901	15,477	15,209	15,750	16,195	16,666	17,020	19,058	19,690	
Percent of Population	20.5	21.3	26.5	24.0	21.5	21.0	21.5	21.9	22.5	22.7	25.9	26.2	23.0
Relief Expended	$405,767	$417,180	$441,740	$374,049	$424,890	$488,154	$490,940	$603,205	$598,455	$461,760	$663,639	$595,237	$497,090
LUZERNE													
Number of Persons	74,876	76,040	81,187	86,179	85,550	84,883	89,747	92,944	93,959	105,407	118,063	119,029	92,322
Number of Cases*	17,257	17,403	18,486	19,565	19,548	19,540	20,784	21,665	22,167	24,884	27,396	27,895	
Percent of Population	16.8	17.1	18.2	19.4	19.2	19.1	20.2	20.9	21.1	23.7	26.5	26.7	20.7
Relief Expended	$448,306	$457,547	$555,992	$408,934	$592,284	$570,333	$685,676	$901,279	$764,197	$885,126	$1,029,029	$1,093,308	$707,359
NORTHUMBERLAND													
Number of Persons	29,636	28,962	29,558	28,449	29,196	29,862	30,551	31,336	31,343	32,717	34,184	35,219	30,919
Number of Cases*	6,470	6,207	6,305	6,033	6,156	6,301	6,597	6,806	6,889	7,236	7,553	7,756	
Percent of Population	23.1	22.5	23.0	22.1	22.7	23.2	23.8	24.4	24.4	25.5	26.6	27.4	24.1
Relief Expended	$181,843	$165,096	$210,244	$154,501	$175,902	$222,182	$227,333	$276,136	$280,016	$248,946	$282,559	$274,483	$224,937
SCHUYLKILL													
Number of Persons	47,561	50,628	51,041	49,450	48,113	48,201	50,344	49,611	51,108	56,475	65,838	63,644	52,668
Number of Cases*	11,765	12,419	12,511	12,247	11,990	12,070	12,604	12,478	12,842	14,099	16,167	15,721	
Percent of Population	20.2	21.5	21.7	21.0	20.4	20.5	21.4	21.1	21.7	24.0	28.0	27.0	22.4
Relief Expended	$268,714	$274,404	$319,232	$250,009	$321,838	$355,624	$391,198	$450,606	$454,616	$364,433	$511,700	$482,754	$370,428
SULLIVAN													
Number of Persons	2,411	982	834	572	556	508	798	876	937	1,119	1,383	1,638	1,051
Number of Cases*	556	203	178	117	115	113	176	187	201	241	298	355	
Percent of Population	32.2	13.1	11.1	7.6	7.4	6.8	10.6	11.7	12.5	14.9	18.4	21.8	14.0
Relief Expended	$4,344	$4,989	$4,491	$3,879	$4,092	$2,272	$5,767	$4,673	$5,465	$5,141	$7,313	$9,045	$5,123
SUSQUEHANNA													
Number of Persons	3,009	2,786	2,736	2,918	2,939	3,591	4,536	4,751	5,312	5,964	6,502	6,371	4,285
Number of Cases*	729	689	675	708	710	867	1,113	1,167	1,310	1,476	1,572	1,539	
Percent of Population	8.9	8.2	8.1	8.6	8.7	10.6	13.4	14.1	15.7	17.6	19.2	18.8	12.7
Relief Expended	$10,679	$10,914	$13,188	$13,731	$15,237	$21,017	$30,846	$35,766	$40,964	$39,424	$43,197	$35,766	$25,894
WAYNE													
Number of Persons	3,155	2,001	1,910	1,772	1,948	2,396	2,896	3,369	4,068	4,411	4,571	4,624	3,093
Number of Cases*	686	443	430	386	429	543	662	783	940	1,004	1,016	1,022	
Percent of Population	11.1	7.0	6.7	6.2	6.9	8.4	10.2	11.9	14.3	15.5	16.1	16.3	10.9
Relief Expended	$8,911	$8,539	$10,317	$8,188	$11,877	$15,769	$20,876	$24,333	$26,766	$27,832	$32,415	$27,674	$18,625
ANTHRACITE SECTION													
Number of Persons	269,746	265,697	290,054	283,082	276,422	278,115	293,561	302,170	309,917	332,784	373,396	374,011	304,080
Number of Cases*	62,663	61,468	66,555	65,149	64,089	64,850	69,032	71,466	73,929	79,264	87,457	88,226	71,171
Percent of Population	19.5	19.2	20.9	20.4	20.0	20.1	21.2	21.8	22.4	24.0	26.9	27.0	21.9
Relief Expended	$1,558,419	$1,540,532	$1,785,460	$1,470,445	$1,800,064	$1,998,930	$2,222,228	$2,723,993	$2,652,802	$2,448,569	$3,058,448	$2,935,578	$2,183,460
PENNSYLVANIA													
Number of Persons	1,592,344	1,528,292	1,598,905	1,550,575	1,543,645	1,593,236	1,730,838	1,805,397	1,857,442	1,876,771	1,861,149	1,869,364	1,700,497
Number of Cases*	394,221	381,646	399,492	387,656	389,057	405,958	441,757	464,345	483,732	494,377	490,580	492,274	435,263
Percent of Population	16.5	15.9	16.6	16.1	16.0	16.5	17.9	18.7	19.3	19.5	19.3	19.4	17.7
Relief Expended	$9,289,196	$8,889,380	$10,240,550	$8,205,019	$10,167,670	$12,575,678	$14,705,252	$17,606,299	$16,970,727	$16,159,814	$17,419,498	$16,499,781	$13,227,905
UNITED STATES													
Number of Persons	16,711,303	17,112,350	17,958,820	18,041,072	18,056,337	18,553,989	19,559,360	20,138,038	19,977,174	19,552,693	18,819,018	18,059,304	18,544,955
Number of Cases*	4,258,803	4,363,199	4,567,285	4,610,049	4,651,763	4,886,475	5,060,113	5,250,618	5,214,749	5,148,497	4,992,340	4,817,444	4,628,470
Percent of Population	13.6	14.0	14.6	14.7	14.7	15.1	15.9	16.4	16.3	15.9	15.3	14.7	15.1
Relief Expended	$93,543,976	$97,462,850	$109,452,292	$103,171,308	$113,599,954	$125,977,788	$133,358,860	$148,209,464	$135,410,771	$137,132,579	$133,111,249	$130,415,356	$121,740,186

*Families plus single persons.

TABLE III

PENNSYLVANIA ANTHRACITE

Production, Men Employed, Days Worked,
Man-Days, and Output Per Man Per Day 1910-1934

Year	Production (thousands net tons)	Number Men Employed	Aver. Number Days Worked	Man-Days Millions	Net Tons Per Man Per Day
1910	84,485	169,497	229	38.8	2.17
1911	90,464	172,585	246	42.5	2.13
1912	84,362	174,030	231	40.2	2.10
1913	91,525	175,745	257	45.1	2.02
1914	90,822	179,679	245	44.0	2.06
1915	88,995	176,552	230	40.4	2.19
1916	87,578	159,869	253	40.4	2.16
1917	99,612	154,174	285	44.0	2.27
1918	98,826	147,121	293	43.1	2.29
1919	88,092	154,571	266	41.1	2.14
1920	89,598	145,074	271	39.3	2.28
1921	90,473	159,499	271	43.2	2.09
1922	54,683	156,849	151	23.7	2.31
1923	93,339	157,743	268	42.3	2.21
1924	87,927	160,009	274	43.8	2.00
1925	61,817	160,312	182	29.2	2.12
1926	84,437	165,386	244	40.4	2.09
1927	80,095	165,259	225	37.2	2.15
1928	75,384	160,681	217	34.8	2.17
1929	73,828	151,501	225	34.1	2.16
1930	69,385	150,804	208	31.4	2.21
1931	59,646	139,431	181	25.2	2.37
1932	49,855	121,243	162	19.6	2.54
1933	49,541	104,633	182	19.0	2.60
1934	57,385	109,050	207	22.6	2.53

Source: U.S. Bureau of Mines

TABLE IV

PENNSYLVANIA ANTHRACITE

Employment by Counties - 1924 and 1930-1934

County	Number Employed 1924	1930	1931	1932	1933	1934	Decrease 1924-34	Percent Decrease 1924-34	% Pop. on Relief June 1, 1934 To June 1, 1935
Carbon	4,776	4,216	4,160	3,870	3,392	4,344	432	9.0	15.1
Columbia	2,213	1,757	1,290	997	1,009	948	1,265	57.1	28.2
Dauphin	2,043	2,016	1,766	1,657	1,285	1,126	917	44.8	15.2
Lackawanna	35,846	36,317	33,797	29,700	21,375	22,954	12,892	35.9	23.0
Luzerne	63,308	61,114	59,225	50,231	44,450	46,737	16,571	26.2	20.7
Northumberland	14,660	11,354	11,326	10,084	7,980	8,161	6,499	44.3	24.1
Schuylkill	37,672	33,082	25,654	21,507	21,547	21,062	16,610	44.1	22.4
Sullivan	708	584	586	703	718	510	198	28.0	14.0
Susquehanna	1,178	457	254	454	203	200	978	83.0	12.7
Wayne	99	274	342	294	510	209	+ 110	-	10.9
Total	162,503	151,171	138,400	119,497	102,469	106,251	55,252	34.0	21.9

Source: Pennsylvania Department of Mines.

TABLE V

PENNSYLVANIA ANTHRACITE

Methods of Mining
1920-1934

	Thousands of Net Tons				
Year	Underground Fresh Mined Coal	Cut By Machine	Mechanized Mining (Loading)	Stripping	Culm Bank & River Coal
1920	-	938	-	2,054	-
1921	-	979	-	2,028	-
1922	-	503	-	950	-
1923	83,009	1,209	-	2,263	8,066
1924	82,869	1,424	-	1,866	3,192
1925	57,152	941	-	1,578	3,086
1926	78,059	932	-	2,401	3,976
1927	73,658	1,172	2,223 (a)	2,153	4,285
1928	69,725	1,290	2,351 (a)	2,423	3,200
1929	69,964	1,160	3,470	1,912	1,952
1930	64,926	1,410	4,467	2,536	1,922
1931	53,459	1,587	4,385	3,813	2,373
1932	43,834	1,674	5,433	3,981	2,040
1933	41,032	1,648	6,557	4,932	3,577
1934	48,575	1,981	9,284	5,798	2,795

(a) Pennsylvania Department of Mines

Source: U.S. Bureau of Mines.

TABLE VI

PENNSYLVANIA ANTHRACITE

Number and Percent of Underground Workers, Man-Days
Underground and Output Per Man Per Day
1920 - 1933

Year	Underground Workers		Man Days Underground	Net Tons Per Man Per Day Underground
	Number	% of Total Workers	Millions	
1920	101,023	69.7	27.4	2.93
1921	116,817	73.2	31.6	2.70
1922	114,279	72.8	17.2	2.87
1923	114,721	72.7	30.7	2.70
1924	119,363	74.9	32.8	2.53
1925	120,568	75.2	21.9	2.60
1926	126,231	76.3	30.8	2.52
1927	127,197	77.0	28.6	2.58
1928	123,896	77.1	26.9	2.60
1929	117,856	77.8	26.5	2.64
1930	118,750	78.7	24.7	2.63
1931	109,280	78.4	19.8	2.70
1932	94,310	77.6	15.0	2.92
1933	79,701	76.2	14.4	2.85

From data of U. S. Bureau of Mines.

TABLE VII

PENNSYLVANIA ANTHRACITE

Value and Consumption
1919-1934

Year	Total Value Millions of Dollars	Average Value Per Net Ton	Millions Net Tons				
			Total U.S. Consumption	Colliery Fuel	Used by Railroads Class I	Used in Manufacturing	Domestic & All Other
1919	364.9	$4.14	81.5	9.6	5.0(a)	15.3	51.6
1920	434.3	4.85	85.8	9.9	5.9(a)	-	-
1921	425.3	5.00	81.9	9.8	4.5	-	-
1922	273.7	5.01	54.8	6.3	4.3	-	-
1923	506.8	5.43	88.9	7.8	4.4	13.9	60.8
1924	477.2	5.43	80.7	7.6	4.3	-	-
1925	327.7	5.30	64.1	5.2	3.9	-	-
1926	474.2	5.62	77.2	6.4	3.6	-	-
1927	420.9	5.26	74.7	6.6	3.5	10.9	53.7
1928	393.6	5.22	73.7	5.7	3.1	-	-
1929	385.6	5.22	71.5	5.3	3.3	9.7	53.2
1930	354.6	5.11	67.6	5.0	2.8	-	-
1931	296.4	4.97	58.4	4.0	1.8	-	-
1932	222.4	4.4[illegible]	50.5	3.2	1.5	-	-
1933	20[illegible].7	4.17	49.6	3.0	1.5	-	-
1934	2[illegible].2	4.2[illegible]	55.5	3.1	-	-	-

(a) Uses other than locomotives estimated, National Industrial Conference Board.

Source: U. S. Bureau of Mines
Bureau of the Census, Census of Manufacturers
Interstate Commerce Commission, Statistics of Railways in the U. S.

TABLE VIII

PENNSYLVANIA ANTHRACITE

Distribution for Coal Years 1916-17 and 1928-29

	1916-1917		1928-1929	
estinatio	Thousands of Net Tons	Percent of Total	Thousands of Net Tons	Percent of Total
ew England	10,758	13.4	9,061	13.3
ew York	22,651	28.1	22,536	33.1
ew Jersey	9,915	12.3	9,878	14.5
ennsylvania	13,621(1)	16.9	14,299(1)	21.0
el. Maryland & D.C.	1,965	2.4	1,789	2.6
		59.7		71.2
orth Central States	5,798	7.2	2,088	3.1
ake Dock States	3,395	4.2	1,541	2.2
xports	4,638	5.7	3,430	5.0
ailroad Fuel	6,434	8.0	3,178	4.7
ll Others	1,394	1.8	345	0.5
otal Distributio	30,569	100.0	68,145	100.0

(1) Does not include colliery fuel.

ource: U.S. Bureau of Mines.

TABLE IX

PENNSYLVANIA ANTHRACITE

Trends in Distribution - 1920-1933

Year	Sold to Local Trade and Used by Employees Tons	% of Prod.	New England Tons	% of Prod.	Exports Tons	% of Prod.	Lake Erie Loadings Tons	% of Prod.	Colliery Fuel Tons	% of Prod.
1920	3,199	3.6	11,255	12.6	5,404	6.0	4,033	4.5	9,858	11.0
1921	2,812	3.1	11,374	12.6	4,677	5.2	4,266	4.7	9,760	10.8
1922	2,377	4.3	6,471	11.8	2,650	4.8	1,382	2.5	6,303	11.5
1923	3,248	3.5	12,185	13.1	5,090	5.5	3,512	3.8	7,851	8.4
1924	3,044	3.5	10,611	12.1	4,017	4.6	3,094	3.5	7,635	8.7
1925	2,384	4.7	8,280	13.4	3,178	5.1	1,793	2.9	5,153	8.3
1926	2,687	3.2	10,608	12.6	4,030	4.8	2,858	3.4	6,431	7.6
1927	3,047	3.8	9,145	11.3	3,326	4.1	1,918	2.4	6,554	8.1
1928	3,184	4.2	9,376	12.4	3,336	4.4	1,421	1.9	5,676	7.5
1929	3,233	4.4	9,039	12.2	3,406	4.6	1,321	1.8	5,301	7.2
1930	3,144	4.5	8,387	12.1	2,551	3.7	1,232	1.8	5,038	7.3
1931	2,901	4.9	7,064	11.8	1,778	3.0	751	1.3	3,986	6.7
1932	2,810	5.6	5,639	11.3	1,303	2.6	294	0.6	3,150	6.3
1933	3,249	6.6	5,252	10.6	1,035	2.0	425	0.9	2,956	6.0

From data of the U.S. Bureau of Mines

TABLE X

PRINCIPAL FUELS SUPPLIED FOR DOMESTIC AND COMMERCIAL HEATING IN UNITED STATES - 1925-1934 (1)

	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
Solid Fuels (Thousands Net Tons)										
Pennsylvania Anthracite (2)	44,643	61,336	57,782	54,737	54,296	51,670	44,498	37,340	36,597	42,278
Anthracite, Imported (3)	383	813	119	385	487	675	638	607	456	478
By-Product Coke (4)	4,085	5,057	4,703	6,254	7,376	7,886	8,377	9,422	10,215	10,174
Beehive Coke (4)	333	386	111	78	135	141	119	208	276	346
Bituminous Coal	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Fuel Briquets Produced & Imported (6)	346	1,119	1,031	1,019	1,302	1,102	759	551	573	705
Oil (Thousands Barrels)										
Range Oil	(7)	(7)	(7)	(7)	(7)	(7)	4,549	6,841	[illegible]	19,[illegible]53
Other Light Fuel Oils-Domestic	8,829	9,080	11,709	14,272	19,581	25,771	24,848	29,264	34,140	(7)
Commercial Heating Oils	12,100	13,874	15,751	16,427	17,693	17,508	15,731	(7)	(7)	(7)
Liquefied Pet. Gases-Domestic	(7)	(7)	(7)	(7)	141	275 (8)	364	376	396	421
Gas (Billion Cubic Feet)										
Natural Gas (9)	272	289	296	321	360	376	381	386	369	[illegible]
Mfg. Gas - Domestic (10)	(7)	(7)	289	(7)	299	(7)	275	(7)	227	234

(1) Unless otherwise specified, all data from U.S. Bureau of Mines

(2) Calculated - Total shipments of domestic sizes, No. 1 buckwheat and local sales, less exports. This is approximate, as some No. 1 buckwheat is used industrially and some steam sizes are exported.

(3) Total imports. Part of this coal may be used for purposes other than heating.

(4) Coke sold for domestic and commercial heating.

(5) U.S. Bureau of Mines estimates between 56,000,000 and 77,000,000 tons per year.

(6) Actual tonnage used as domestic fuel not known. A small percentage of the domestic production is exported.

(7) Data not available.

(8) Estimated.

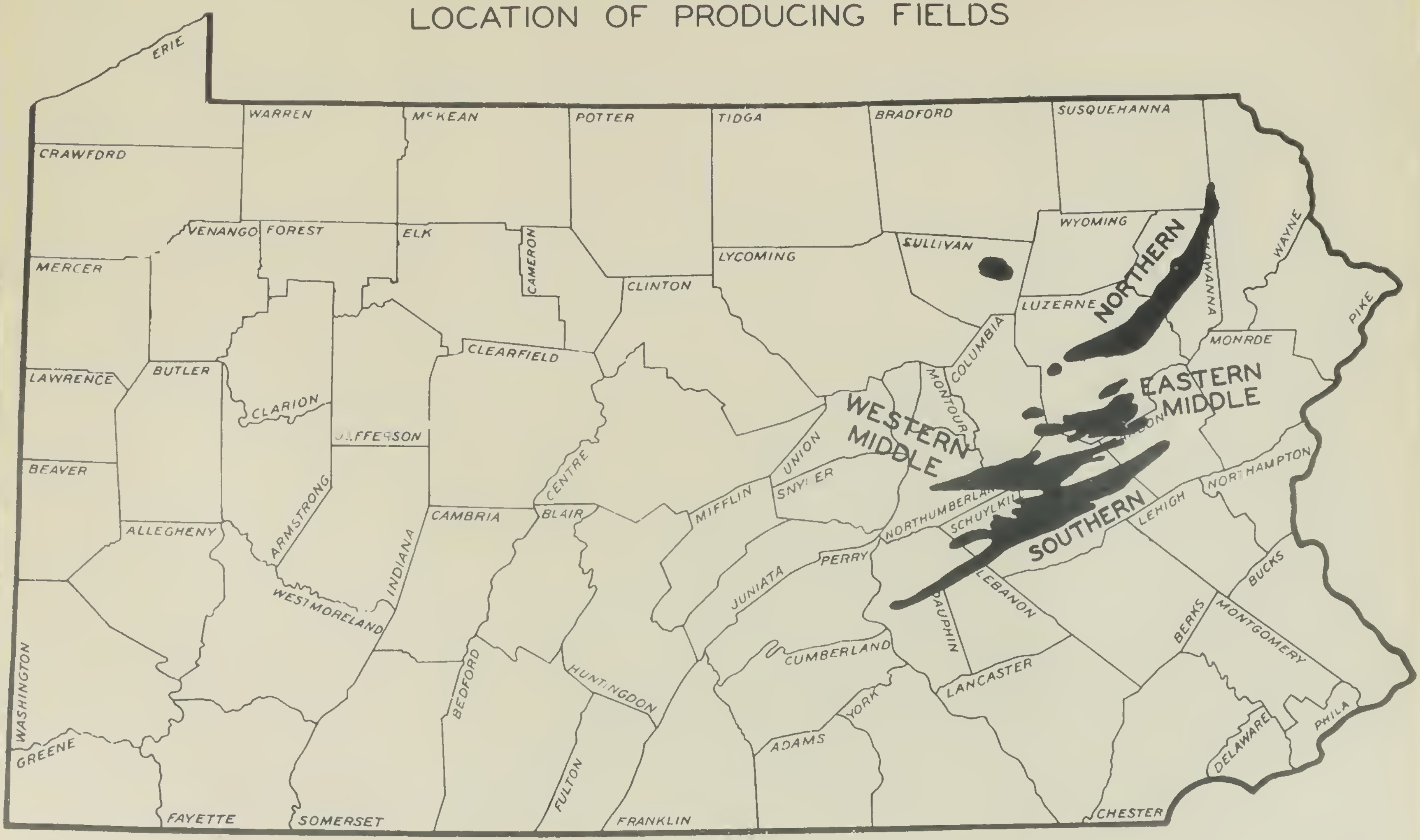
(9) Consumed for commercial and domestic heating.

(10) Domestic and househeating sales only. From Census of Manufactures.

CHARTS

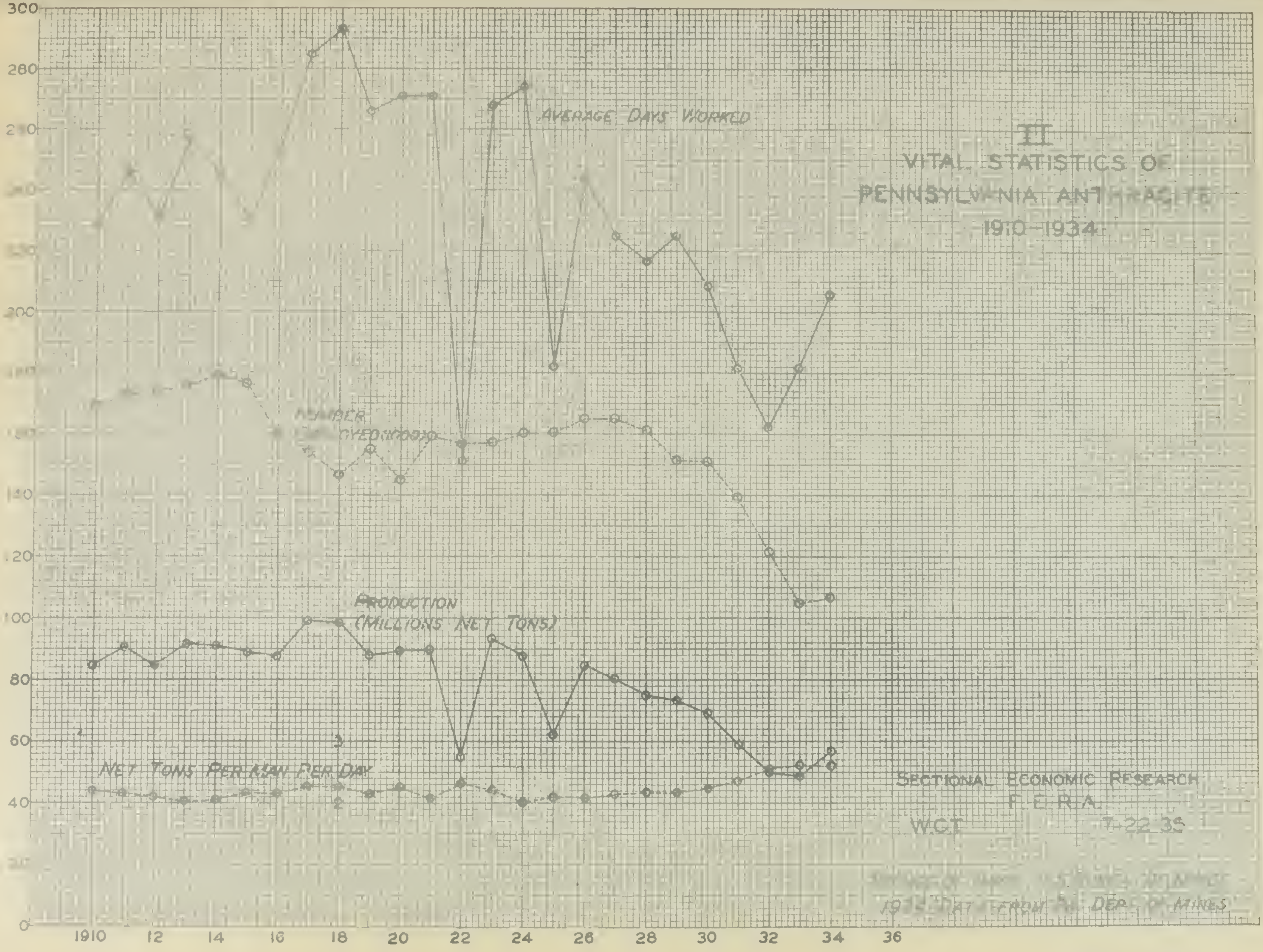
I

PENNSYLVANIA ANTHRACITE LOCATION OF PRODUCING FIELDS



SECTIONAL ECONOMIC RESEARCH
F. E. R. A.

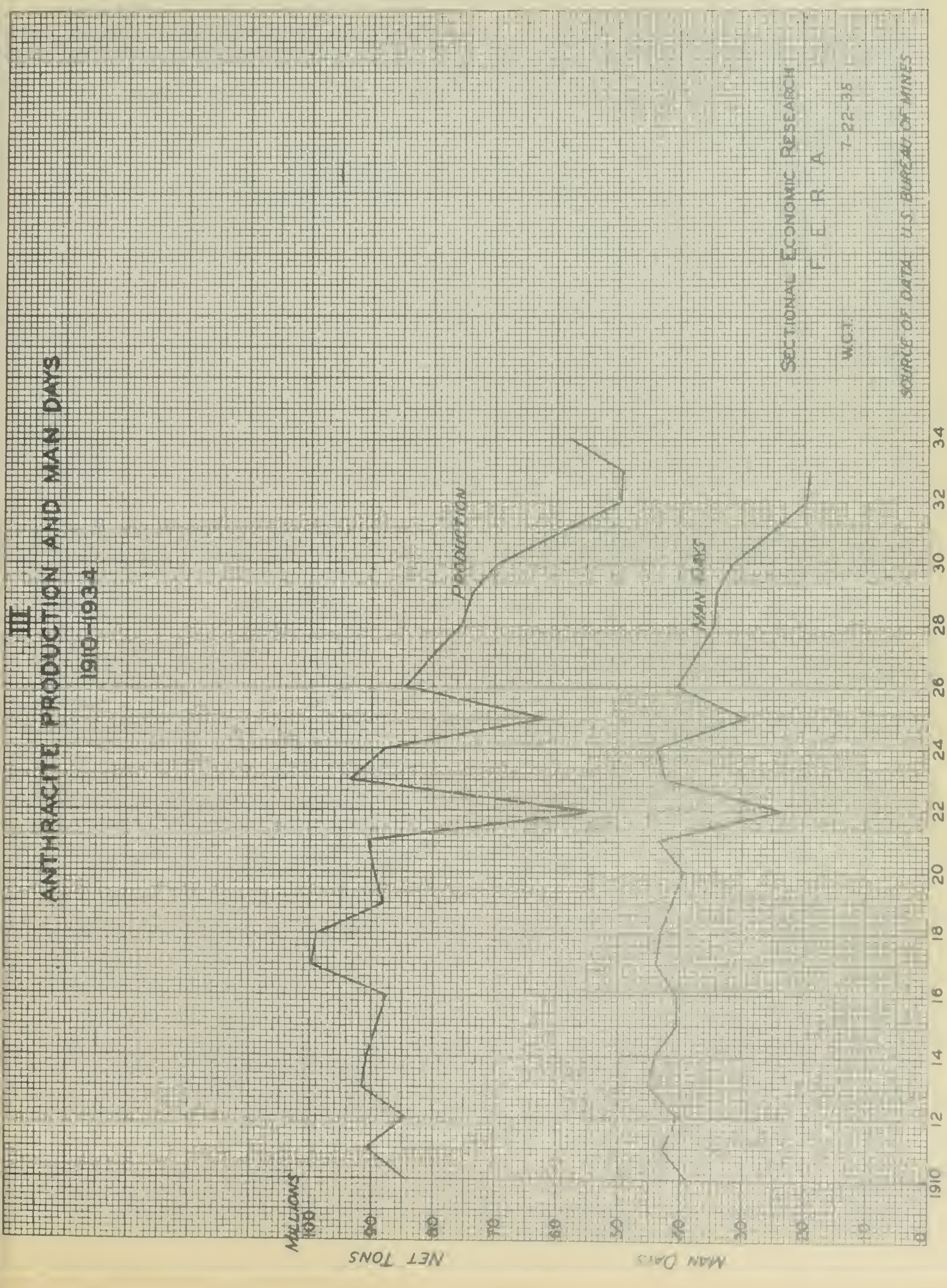
W.C.T. 7-23-35



II
VITAL STATISTICS OF
PENNSYLVANIA ANTHRACITE
1910-1934

SECTIONAL ECONOMIC RESEARCH
F.E.R.A.
W.G.T. 7-22-35

KEUFFEL & ESSER CO N. Y.

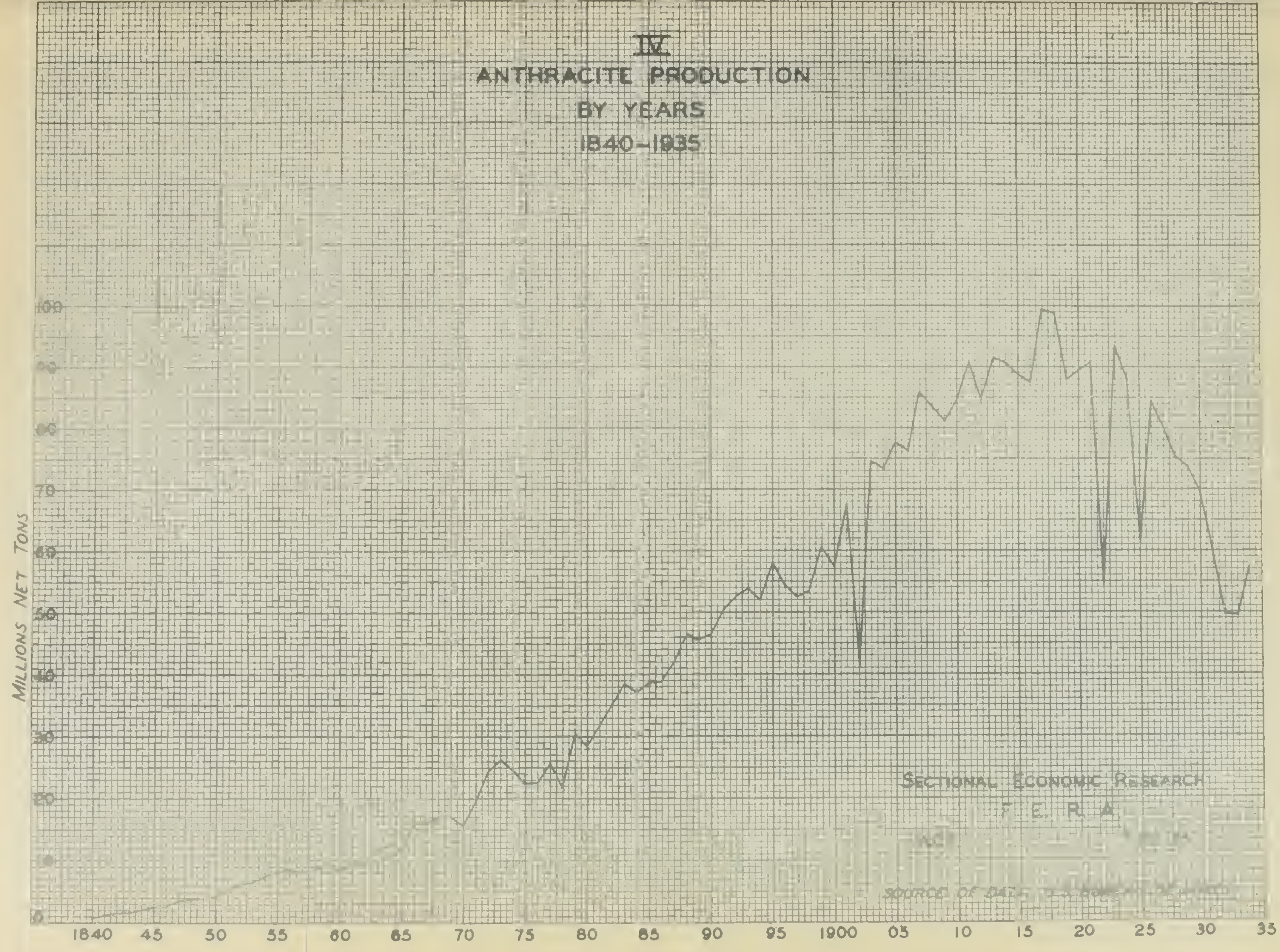


III
ANTHRACITE PRODUCTION AND MAN DAYS
1910-1934

SECTIONAL ECONOMIC RESEARCH
F E R A

W.C.T. 7-22-35

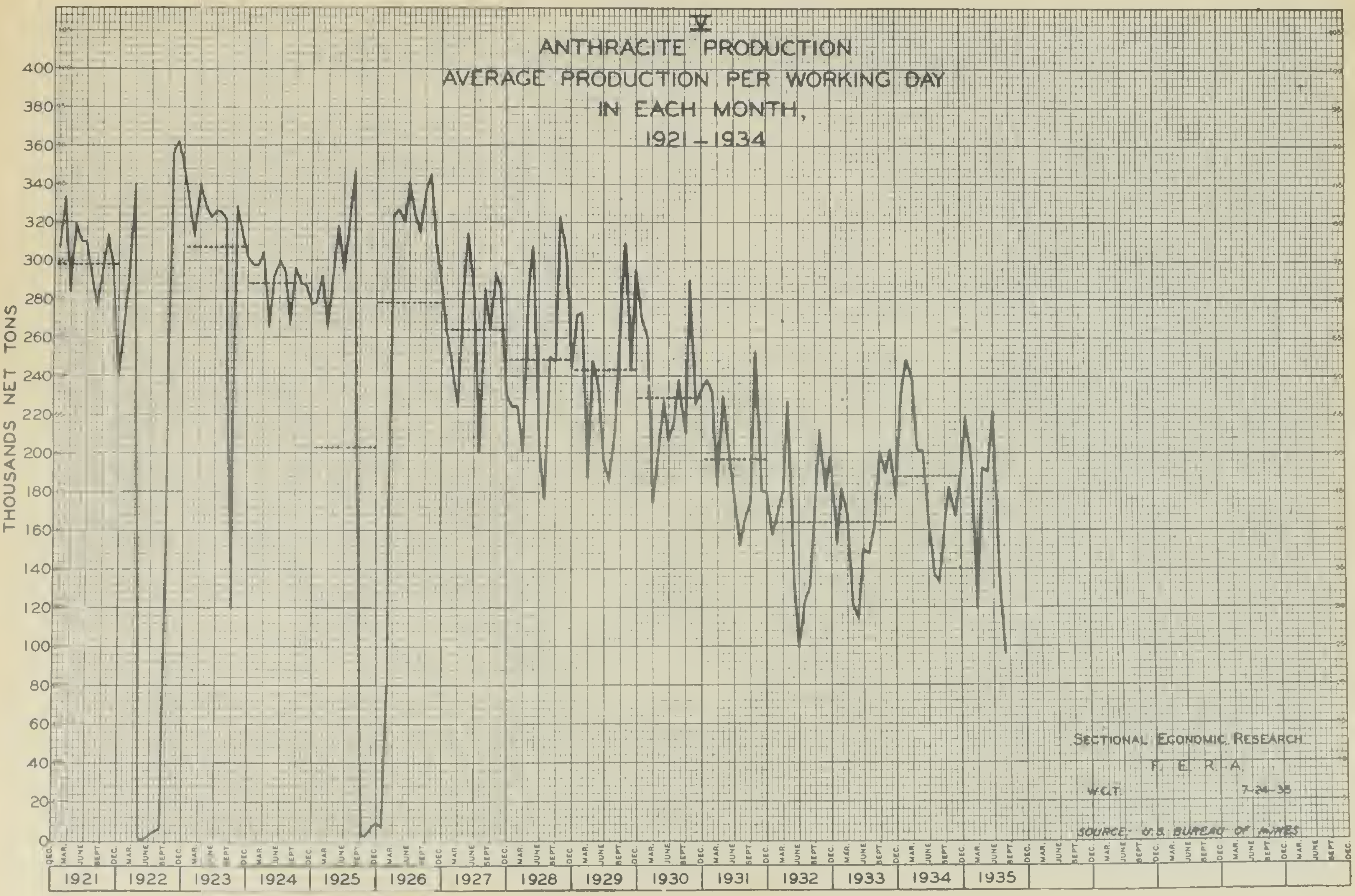
SOURCE OF DATA U.S. BUREAU OF MINES



IV
ANTHRACITE PRODUCTION
BY YEARS
1840-1935

SECTIONAL ECONOMIC RESEARCH
F. E. R. A.

SOURCE OF DATA [illegible]

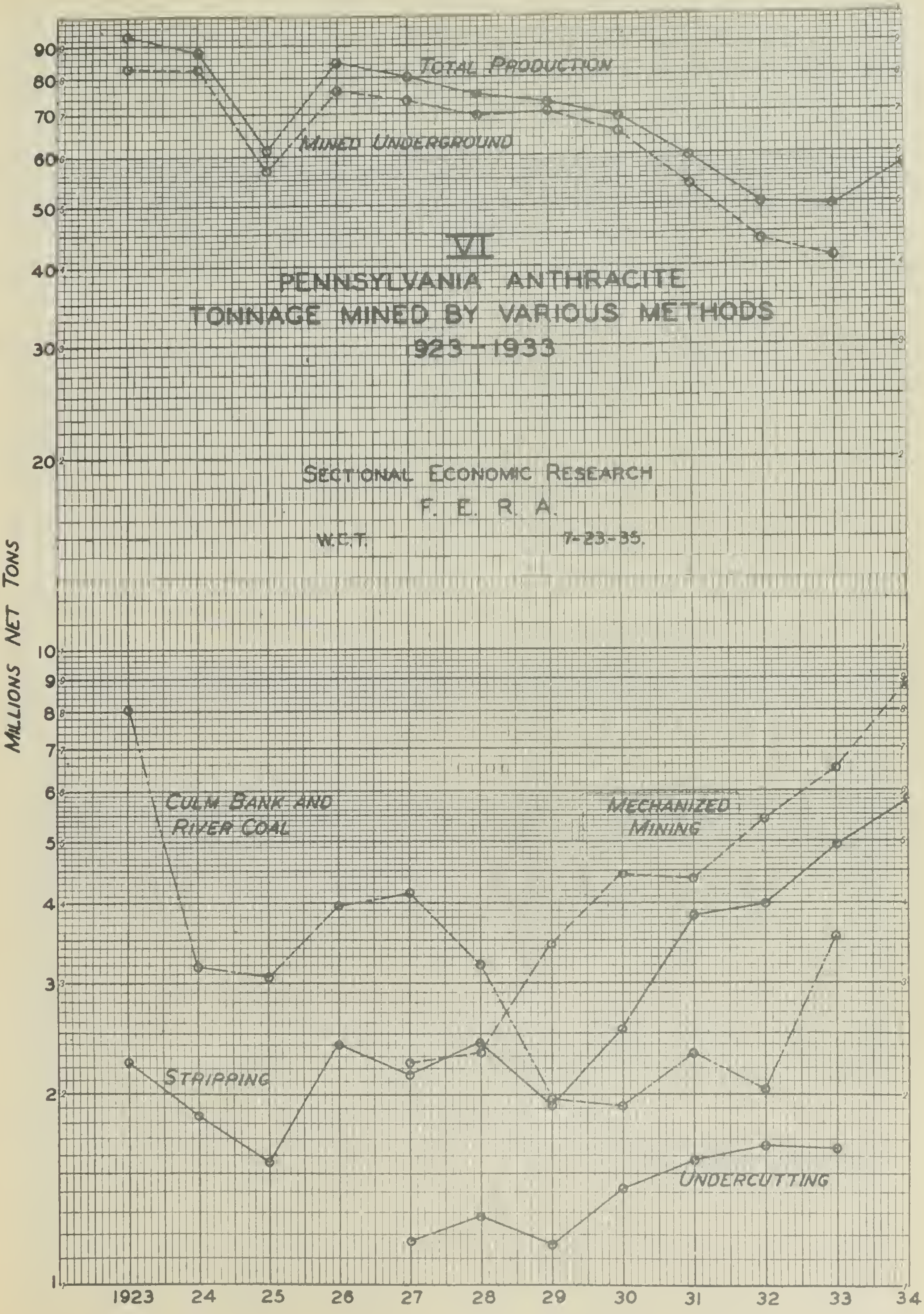


V

ANTHRACITE PRODUCTION

AVERAGE PRODUCTION PER WORKING DAY
IN EACH MONTH,
1921 – 1934

SECTIONAL ECONOMIC RESEARCH
F. E. R. A.
W.C.T. 7-24-35
SOURCE: U.S. BUREAU OF MINES



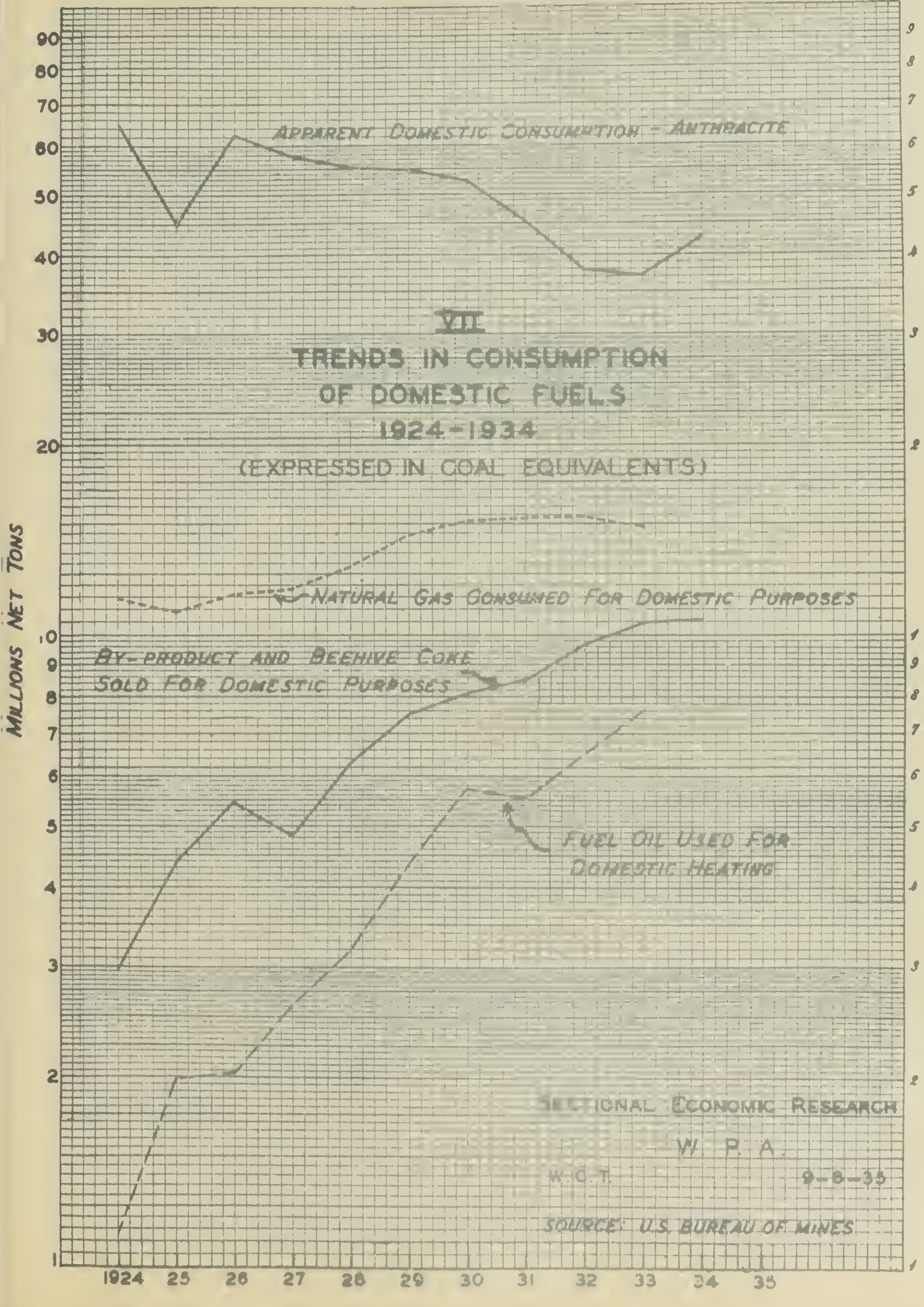
VI

PENNSYLVANIA ANTHRACITE
TONNAGE MINED BY VARIOUS METHODS
1923 – 1933

SECTIONAL ECONOMIC RESEARCH
F. E. R. A.

W.C.T. 7-23-35.

SOURCE: U.S. BUREAU OF MINES

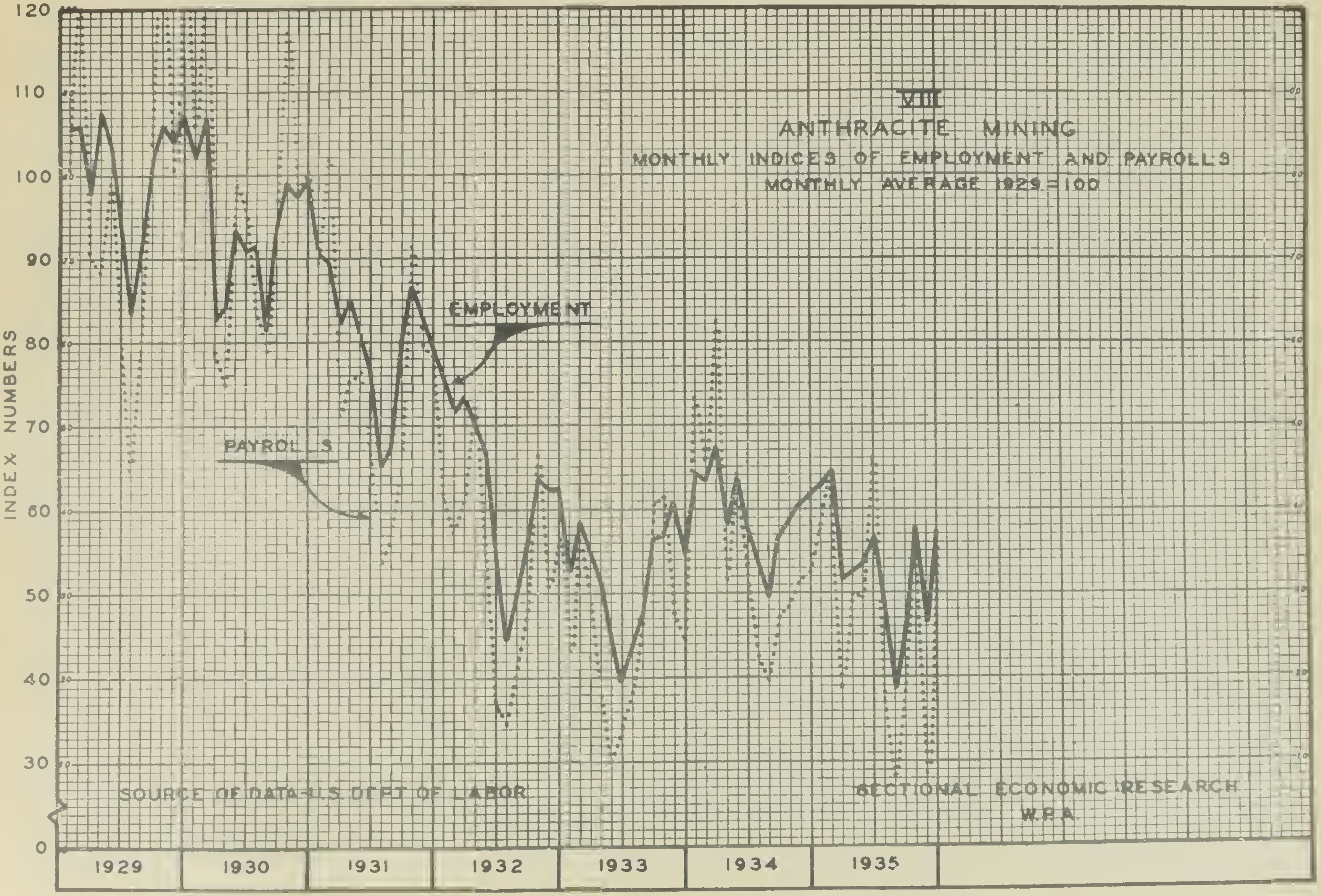


VII

TRENDS IN CONSUMPTION
OF DOMESTIC FUELS
1924-1934
(EXPRESSED IN COAL EQUIVALENTS)

SECTIONAL ECONOMIC RESEARCH
W. P. A.
W. C. T. 9-8-35

SOURCE: U.S. BUREAU OF MINES



VIII

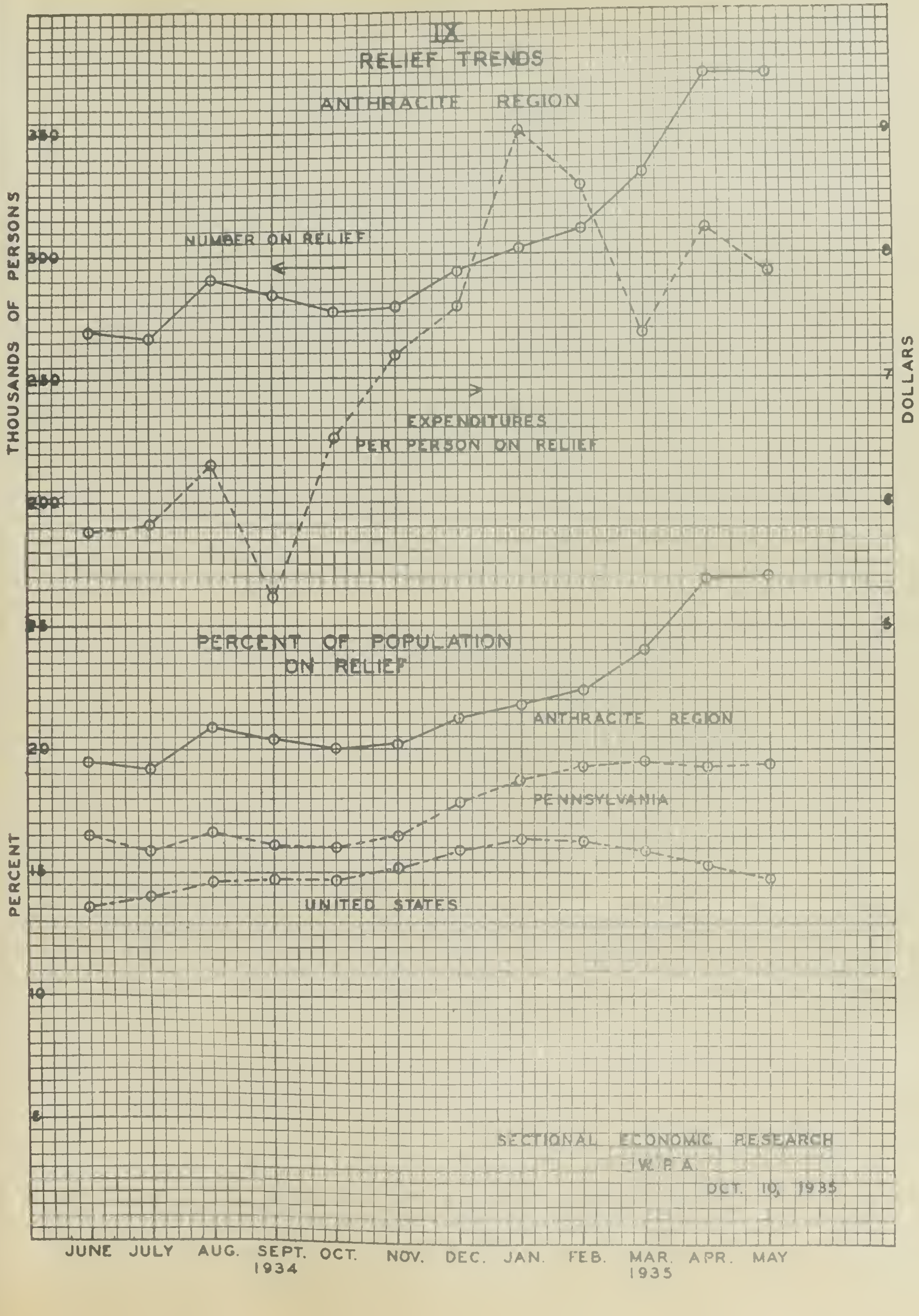
ANTHRACITE MINING

MONTHLY INDICES OF EMPLOYMENT AND PAYROLLS

MONTHLY AVERAGE 1929 = 100

SOURCE OF DATA - U.S. DEPT OF LABOR

SECTIONAL ECONOMIC RESEARCH
W.P.A.



IX

RELIEF TRENDS

ANTHRACITE REGION

SECTIONAL ECONOMIC RESEARCH
W. P. A.
OCT. 10, 1935

ANTHRACITE INDUSTRY CAN RECOVER LOSSES OF EXTERNAL AND INTERNAL COMPETITION

We challenge the terrifying conclusion that anthracite cannot expect to regain its lost markets, that 40,000 to 50,000 idle mine workers are doomed to hopeless unemployment. We believe that the lost markets can be regained, that employment opportunity can be increased substantially, that a fair measure of stability and prosperity can be brought back to the industry and to the communities dependent on it.

(From Saward's Journal, February 15, 1936)

An investigation of the anthracite industry's condition and of the unemployment which exists in "the region" was made under the auspices of the National Government recently, and a brief resume of the findings was made public. From articles which appeared thereafter in the regional newspapers we gather that the report caused considerable controversy.

But we have seen no editorial comment to challenge the terrifying conclusion in that report that Anthracite cannot expect to regain any appreciable part of the markets captured by its competitors, that 40,000 to 50,000 idle mine workers are doomed to hopeless unemployment and that the young men of the region must live in idleness or turn to some industry other than anthracite mining for their future livelihood.

We herewith challenge that conclusion. We believe that anthracite can regain a large part of its lost markets—that employment opportunity can be increased substantially, that a fair measure of stability and prosperity can be brought back to the industry and to the communities dependent on it.

A Lower Delivered Price Needed.

A reduction of not less than $2 per ton in the price of the larger sizes of anthracite delivered in the consumer's bin, an organized and determined sales and service effort which will reach directly into the homes of American fuel consumers, and a cooperative spirit within the industry will turn the energy now used by all sides for internal warfare into a drive against external competitors, will do the job.

Such a program should set its goal for the recapture within two years of the following:

Canadian export Market	3,000,000
Oil burners	2,500,000
Bituminous	2,500,000
Imported fuels	500,000
Coke	4,000,000
Gas	1,000,000
Loss of Industrial business....	500,000
Stolen Coal Industry	4,000,000
Total	18,000,000

Consumer economies might be expected to cut down this total by a small amount following the installation of more efficient heating equipment but this should be more than offset by the return of many persons to homes of their own. now that the future outlook of business and employment is brighter.

Recovering Business.

A reduced price should promptly retake a considerable portion of the anthracite market captured by British coals in Canada, should, along with a tariff, virtually wipe out the imported coal business on the Atlantic seaboard and should displace a large amount of bituminous and coke substitutions which can be returned to the heavy industry markets where they belong. These gains of markets should restore a fair degree of employment in the southern anthracite region and thus help, with full public support, to wipe out the stolen coal industry. To recover business lost to oil and gas burners means the replacement of present equipment and an expensive merchandising battle, but it is possible. Huge numbers of these installations are makeshifts and inefficient or have become obsolete and require expensive replacements. Why not replace them with efficient automatic equipment burning anthracite?

Who will deny that these objectives are possible as well as desirable? Who will question that further gains would result from a victorious long-term program? Who can justify the handicaps which have paralyzed anthracite as a competitive factor in the American fuel markets for many years.

The figures we are about to quote have been assembled from official sources, mostly from the records compiled by the National Government.

Let us consider these handicaps in their natural order—from the mine to the consumer.

Bituminous Costs.

Handicap No. 1. Production costs.

The labor cost of mining and preparing a ton of bituminous coal of the type which has displaced anthracite is approximately $1.05 a ton. The labor cost of mining and preparing a ton of anthracite is approximately $2.90 a ton. Difference is a handicap of $1.85.

The supplies and materials cost of producing a ton of bituminous is 15 cents; of anthracite 40 cents. Difference is a handicap of 25 cents.

The current tax burden on a ton of bituminous is about 2¼ cents; on a ton of anthracite about 25 cents. Difference is a handicap of 22¾ cents.

There are other similar disadvantages for anthracite under the head of compensation costs etc. but space prevents a full discussion of them here. Sufficient that the average cost of producing a net ton of anthracite is about $4.35 while the minerals year-book of the U. S. Department of the Interior lists the average 1935 cost of producing the types of bituminous which compete with anthracite at from $1.50 to $1.80 a net ton.

Handicap No. 2. Transportation costs.

We can make this brief. The railroads carry bituminous at a cost of less than half a cent per ton mile. They charge nearly 2 cents per ton mile for anthracite. Also they give coke the advantage of low cost hauling. despite the fact that it takes more cars to transport a given tonnage of bituminous and coke than anthracite which is the heaviest and most compact solid fuel.

Sales and Merchandising.

Handicap No. 3. Wholesale distribution costs.

We believe in healthy competition. It is "the life of business" to quote an old saying. But unhealthy competition in wholesale distribution of anthracite is wasting millions of dollars annually in an internal struggle for survival which could be diverted to real use if the fight were concentrated and organized co-operatively

against external competitors. The producer can stop this destructive competition and its dire results.

Handicap No. 4 Inadequate merchandising.

The retail dealer has reduced his sales margins very greatly in recent years but there are many places where the dealer could improve his customer service or decrease his margins He is primarily a fuel merchant and has the right to expect stability and good service from the anthracite producers and must have it if he is to "push" anthracite successfully against its competitors. But he must do his part also. Usually the misfortunes of depression have shrunk his business and his capital and as a result he carries a "low inventory" with his coal pockets almost empty and demands immediate shipments from the mines to compensate for this essential failure to perform one of the functions which justifies his existence. The consumer expects long credit, and further complicates the supply problem by ordering a ton or even a half a ton at a time, demanding immediate deliveries. The result is a higher retailing cost and frequently a failure of supply in the midst of snowstorms and severe Winter conditions, not because there is a shortage of coal at the mines but because there is a shortage in the consumers' bins and the yards of the local dealers. A wise financing and merchandising program would restore the old habit of keeping the consumers' coal bin full and an adequate supply in the hands of dealers in each local community.

We could publish long columns of official figures documenting the list of handicaps quoted above but they are available in the public records to anyone with the skill and disposition to read them and interpret them correctly. Doubtless they will be published in great detail as a part of the forthcoming wage conference between the Anthracite operators and the United Mine Workers.

Developing a Programme.

The anthracite operators, at the present writing, have given no authoritative indication of their program at that conference. But the record of their attitude at the unsuccessful emergency conference two years ago is a fair indication that they will ask for adjustments which will greatly reduce the cost of mining coal either by flat wage decrease of 25 to 30 per cent or some other effective method. They should not stop there. The miner isn't the only one who should make a contribution. The operators should offer some reasonable program for eliminating the many handicaps other than labor cost which have well-nigh wrecked this once great and still immensely useful industry. Better still they should develop a co-operative spirit and effort in which the anthracite mine worker and the other citizens of the anthracite communities would join with them and have a voice as well as responsibility in achieving these ends.

That brings us to the very serious problem within the anthracite industry—unfair internal competition. This is an outgrowth of the losing battle against external competition and may be interpreted as a proof that the industry as a whole must find a price level at which it can sell its product against bituminous, coke and other competitors.

Internal Competition.

Approximately twenty per cent of the anthracite sold today is produced with wage and other costs far below those which are required of the legitimate operators who pay the Union wage scale and comply with the mining, compensation and other laws that regulate this industry

The stolen coal industry accounts for nearly 10 per cent of the total anthracite tonnage—more, if one allows for the fact that small size are discarded as too costly to clean. It pays no rent or royalty for the coal, no compensation no taxes and generally ignores all law and regulation by the State. No wonder it is able to undersell the legitimate product!

But there is another industry within the industry which aggregates a tonnage equal or greater than stolen coal, and provides internal competition just as deadly—the "snow-bird" mine operator. Great numbers of these small enterprises have sprung up all over "the region." They have ignored or defied the United Mine Workers, pay wages far less than the Union scale and somehow get around other high costs demanded of the legitimate industry. They pour low-grade coal into the markets at prices which have ruined the stability of the anthracite price structure.

The result of this internal competition in the industry is that twenty per cent of the total product is sold at prices from $1.50 to $2.00 less than the cost of production by the legitimate companies and that means the Independents as well as the so-called line companies.

One of our editorial friends in the region recently suggested that it was absurd to say that the people of the anthracite region have it in their hands to correct conditions and restore the industry to stability and prosperity, thereby preventing its ruin and restoring its future. Responsibility, he said, lies with the Operators and the United Mine Workers. May we suggest that they are a part, but only a part, of the anthracite community? There are three men in the boat. Operator, worker, and the ordinary citizen. If the boat sinks, all sink. And none of the three can refuse to bail in the storm and help navigate the boat to safety.

The final report on total and partial unemployment in Pennsylvania as garnered from the 1937 census, conducted under the direction of John D. Biggers, contains some interesting figures. The 1930 census showed 9,361,350 population for the state. The 1937 census showed that 568,214 persons were classed as totally unemployed; 301,087 partly unemployed and 184,311 "emergency workers"—those on WPA, NYA, CCC or other emergency work. Of the totally unemployed in the state 415,164 are men and 153,050 women. In the coal mining industry of Pennsylvania the census found that 36,799 persons were totally unemployed, 45,439 are partly unemployed while 16,147 are listed as emergency workers.

Schuylkill county census figures revealed 21,002 totally unemployed, including 16,297 men and 4,705 women. The survey revealed 8,772 emergency workers and 6,340 partly unemployed. Of the total unemployed in the county 607 were found to be living on farms, which also held 266 partly unemployed. The 1930 census gave the county a population of 235,505, including 583 colored.

Pottsville's totally unemployed were numbered at 1,889, including 1431 men and 458 women. Seventy-eight negroes were among those without work. Pottsville was credited with 1,142 emergency workers including 949 men and 143 women. Pottsville also counted 615 partly unemployed inhabitants, with 479 of them men and 136 women.

* * * * *

Of Pottsville's 1889 totally unemployed 268 were

QUESTIONS and ANSWERS

ON

THE PROGRAM TO ELIMINATE BOOTLEGGING

BY

MART F. BRENNAN, President, District No. 9
UNITED MINE WORKERS OF AMERICA

against external competitors. The producer can stop this destructive competition and its dire results.

Handicap No. 4. Inadequate merchandising.

The retail dealer has reduced his sales margins very greatly in recent years but there are many places where the dealer could improve his customer service or decrease his margins. He is primarily a fuel merchant and has the right to expect stability and good service from the anthracite producers and must have it if he is to "push" anthracite successfully against its competitors. But he must do his part also. Usually the misfortunes of depression have shrunk his business and his capital and as a result he carries a "low inventory" with his coal pockets almost empty and demands immediate shipments from the mines to compensate for this essential failure to perform one of the functions which justifies his existence. The consumer expects long credit, and further complicates the supply problem by ordering a ton or even a half a ton at a time, demanding immediate deliveries. The result is a higher retailing cost and frequently a failure of supply in the midst of snowstorms and severe Winter conditions, not because there is a shortage of coal at the mines but because there is a shortage in the consumers' bins and the yards of the local dealers. A wise financing and merchandising program would restore the old habit of keeping the consumers' coal bin full and an adequate supply in
the hands of dealers in cach local cor

We could publish long columns
figures documenting the list of handica
above but they are available in tl
records to anyone with the skill and c
to read them and interpret them
Doubtless they will be published in gr
as a part of the forthcoming wage c
between the Anthracite operators
United Mine Workers.

Developing a Programme.

The anthracite operators, at the pres
ing, have given no authoritative indi
their program at that conference.
record of their attitude at the uns
emergency conference two years ago
indication that they will ask for adj
which will greatly reduce the cost of
coal either by flat wage decrease of 25
cent or some other effective methoc
should not stop there. The miner isn't
one who should make a contributio
operators should offer some reasonable
for eliminating the many handicaps otl
labor cost which have well-nigh wrecl
once great and still immensely useful i
Better still they should develop a co-o
spirit and effort in which the anthraci
worker and the other citizens of the an
communities would join with them and
voice as well as responsibility in achievi
ends.

That brings us to the very serious
within the anthracite industry—unfair
competition. This is an outgrowth of th
battle against external competition and
interpreted as a proof that the indust
whole must find a price level at which it
its product against bituminous, coke an
competitors.

Internal Competition.

Approximately twenty per cent of the
cite sold today is produced with wage an
costs far below those which are required
legitimate operators who pay the Unio
scale and comply with the mining, co
tion and other laws that regulate this in

The stolen coal industry accounts for
10 per cent of the total anthracite to
more, if one allows for the fact that sma
are discarded as too costly to clean. It
rent or royalty for the coal, no compe

no taxes and generally ignores all law and regulation by the State No wonder it is able to undersell the legitimate product!

But there is another industry within the industry which aggregates a tonnage equal or greater than stolen coal, and provides internal competition just as deadly—the "snow-bird" mine operator. Great numbers of these small enterprises have sprung up all over "the region." They have ignored or defied the United Mine Workers, pay wages far less than the Union scale and somehow get around other high costs demanded of the legitimate industry. They pour low-grade coal into the markets at prices which have ruined the stability of the anthracite price structure.

The result of this internal competition in the industry is that twenty per cent of the total product is sold at prices from $1.50 to $2.00 less than the cost of production by the legitimate companies and that means the Independents as well as the so-called line companies.

One of our editorial friends in the region recently suggested that it was absurd to say that the people of the anthracite region have it in their hands to correct conditions and restore the industry to stability and prosperity, thereby preventing its ruin and restoring its future. Responsibility, he said, lies with the Operators and the United Mine Workers. May we suggest that they are a part, but only a part, of the anthracite community? There are three men in the

---

Miner: If my colliery buys bootleg coal, will it cut down on the number of days I work?

M. F. Brennan: No, all of the bootleg coal is going on the market anyway, so it cannot possibly take any working time from you.

Miner: What is the survey for?

M. F. Brennan:
(1) To find out the number of holes and breakers.
(2) Total number of bootleggers and tonnage.
(3) How many of the bootleggers were at one time employed at the mines, or if not employed, were dependent upon their father, uncle, or brother who was a mine worker and a member of our organization.

Miner: How many bootleggers are there?

M. F. Brennan: We do not know, and that is the purpose of the survey. We must know the facts before the whole plan is put into effect.

Miner: What is the plan? I have read about it but don't understand it.

M. F. Brennan: There are three parts to the plan:
(1) The survey referred to above.
(2) The purchase of bootleg coal by legitimate mines.
(3) The gradual employment of bootleggers in legitimate mines, either by expansion of present mines, or it is hoped by the opening of new or abandoned collieries.

Miner: As bootleggers are employed, will it cut down on my working time?

M. F. Brennan: It cannot possibly take any time away from you or it would not have been approved by every official of the U. M. W. of A., including President Lewis, Vice President Murray, Secretary Kennedy, and the three district presidents. As a matter of fact the elimination of bootlegging should give you more working time.

Miner: How?

M. F. Brennan: The sale of bootleg coal, often inferior in quality and short weighted, sold at prices which your colliery cannot compete with, has weakened the dealer who has not been able to maintain the proper service to home owners, resulting in large losses of tonnage to competitive fuels. Also, because of bootleg price cutting, your colliery has not been able to spend enough money on research, advertising, and sales promotion to help the dealer regain markets.

Miner: Can markets be regained?

M. F. Brennan: Yes, and now is the time to do it. The defense program has increased prosperity. Thousands of new homes are

The final report on total and partial unemployment in Pennsylvania as garnered from the 1937 census, conducted under the direction of John D. Biggers, contains some interesting figures. The 1930 census showed 9,361,350 population for the state. The 1937 census showed that 568,214 persons were classed as totally unemployed; 301,087 partly unemployed and 184,311 "emergency workers"—those on WPA, NYA, CCC or other emergency work. Of the totally unemployed in the state 415,164 are men and 153,050 women. In the coal mining industry of Pennsylvania the census found that 36,799 persons were totally unemployed, 45,439 are partly unemployed while 16,147 are listed as emergency workers.

Schuylkill county census figures revealed 21,002 totally unemployed, including 16,297 men and 4,705 women. The survey revealed 8,772 emergency workers and 6,340 partly unemployed. Of the total unemployed in the county 607 were found to be living on farms, which also held 266 partly unemployed. The 1930 census gave the county a population of 235,505, including 583 colored.

Pottsville's totally unemployed were numbered at 1,889, including 1431 men and 458 women. Seventy-eight negroes were among those without work. Pottsville was credited with 1,142 emergency workers including 949 men and 143 women. Pottsville also counted 615 partly unemployed inhabitants, with 479 of them men and 136 women.

* * * * *

being built and the operators and ourselves must see that anthracite burning equipment is installed in these homes. An expanded promotional program will regain markets lost to other fuels, and this will give you more working time. However, this can only be done as bootlegging is eliminated.

Miner: Why are some people opposed to this bootleg plan?

M. F. Brennan: If anyone objects to the plan it is based upon lack of knowledge of the plan, or upon a desire for personal gain. We expect continued opposition from racketeering breaker operators who are taking advantage of unemployment to force men (many of them your friends and mine) to work for low wages, at long hours, and under conditions that would not be tolerated by companies coming under the agreement between the U. M. W. of A. and the Anthracite operators.

Miner: How and when does the bootlegger sell his coal to a legitimate breaker?

M. F. Brennan: After the survey has been completed the operator will make arrangements with bootleggers from whom he will buy coal.

Miner: Is the bootlegger going to work every day in the week, when I only work part of the time?

M. F. Brennan: Under the plan the bootleg coal which can be purchased by the legitimate colliery is limited to the daily rate of production of the hole as of the time of the survey, and to the number of days that your colliery is working. The bootlegger will be assured of honest weight, fair prices, and will be paid for the total weight of the run of mine coal, not just for the larger sizes.

Miner: Are there any miners who work at a legitimate colliery part of the time and bootleg the balance of the week?

M. F. Brennan: If there are, this will be stopped immediately by the U. M. W. of A. and the legitimate operators. Such practice is in violation of several decisions of the Umpire and definitely cuts down your working time.

Miner: How many of the men who are bootlegging are natives of this region?

M. F. Brennan: We will not know until the survey is completed, but we know in advance that hundreds of men have come from all over the country to bootleg, and thereby help ruin the industry that is paying your wages.

Miner: I have a brother who was formerly employed at a colliery who has been bootlegging for five years. How do you feel about him?

M. F. Brennan: My sympathy has always been with the real honest to goodness miner, whose father and ancestors have been

against external competitors. The producer can stop this destructive competition and its dire results.

Handicap No. 4. Inadequate merchandising.

The retail dealer has reduced his sales margins very greatly in recent years but there are many places where the dealer could improve his customer service or decrease his margins He is primarily a fuel merchant and has the right to expect stability and good service from the anthracite producers and must have it if he is to "push" anthracite successfully against its competitors. But he must do his part also. Usually the misfortunes of depression have shrunk his business and his capital and as a result he carries a "low inventory" with his coal pockets almost empty and demands immediate shipments from the mines to compensate for this essential failure to perform one of the functions which justifies his existence. The consumer expects long credit, and further complicates the supply problem by ordering a ton or even a half a ton at a time. demanding immediate deliveries. The result is a higher retailing cost and frequently a failure of supply in the midst of snowstorms and severe Winter conditions, not because there is a shortage of coal at the mines but because there is a shortage in the consumers' bins and the yards of the local dealers. A wise financing and merchandising program would restore the old habit of keeping the consumers' coal bin full and an adequate supply in
the hands of dealers in each local cc

We could publish long columns
figures documenting the list of handic
above but they are available in i
records to anyone with the skill and
to read them and interpret them
Doubtless they will be published in gi
as a part of the forthcoming wage
between the Anthracite operators
United Mine Workers.

Developing a Programme.

The anthracite operators, at the pre.
ing, have given no authoritative ind:
their program at that conference.
record of their attitude at the un:
emergency conference two years ago
indication that they will ask for ad.
which will greatly reduce the cost c
coal either by flat wage decrease of 25
cent or some other effective metho
should not stop there. The miner isn't
one who should make a contributi
operators should offer some reasonable
for eliminating the many handicaps ot
labor cost which have well-nigh wre
once great and still immensely useful
Better still they should develop a co-
spirit and effort in which the anthra
worker and the other citizens of the a
communities would join with them an
voice as well as responsibility in achiev
ends.

That brings us to the very serious
within the anthracite industry—unfair
competition. This is an outgrowth of t
battle against external competition and
interpreted as a proof that the indus
whole must find a price level at which i
its product against bituminous, coke a
competitors.

Internal Competition.

Approximately twenty per cent of the
cite sold today is produced with wage a
costs far below those which are require
legitimate operators who pay the Uni
scale and comply with the mining, co
tion and other laws that regulate this

The stolen coal industry accounts fo
10 per cent of the total anthracite t
more, if one allows for the fact that sn
are discarded as too costly to clean. It
rent or royalty for the coal, no comp

no taxes and generally ignores all law and regulation by the State. No wonder it is able to undersell the legitimate product!

But there is another industry within the industry which aggregates a tonnage equal or greater than stolen coal, and provides internal competition just as deadly—the "snow-bird" mine operator. Great numbers of these small enterprises have sprung up all over "the region." They have ignored or defied the United Mine Workers, pay wages far less than the Union scale and somehow get around other high costs demanded of the legitimate industry. They pour low-grade coal into the markets at prices which have ruined the stability of the anthracite price structure.

The result of this internal competition in the industry is that twenty per cent of the total product is sold at prices from $1.50 to $2.00 less than the cost of production by the legitimate companies and that means the Independents as well as the so-called line companies.

One of our editorial friends in the region recently suggested that it was absurd to say that the people of the anthracite region have it in their hands to correct conditions and restore the industry to stability and prosperity, thereby preventing its ruin and restoring its future. Responsibility, he said, lies with the Operators and the United Mine Workers. May we suggest that they are a part, but only a part, of the anthracite community? There are three men in the

---

miners, who was forced to bootlegging, but I insist he is the only one entitled to consideration. The survey will show how many fall under this classification and how many are the racketeers and workers who came to this region after bootlegging was started and are now reaping big profits at the expense of those entitled to consideration.

Miner: Why wasn't a plan to eliminate bootlegging started long ago?

M. F. Brennan: Up until this time no plan was worked out that was satisfactory to our organization, the State, and the operators. Secondly, bootlegging started and grew during the worst of the depression years; and increased State and national prosperity was necessary to take up some of the unemployment existing in this district. There is a definite shortage of skilled and unskilled labor, and now is the time for all outsiders to find other employment.

Miner: I find that more people are concerned than they used to be about the number of deaths and accidents in bootleg holes.

M. F. Brennan: Sixty-four were killed last year, and there is no record of the number that were injured and became a permanent liability upon the community for the balance of their lives.

Miner: How do miners in other sections of the Anthracite region feel about the bootlegging?

M. F. Brennan: They insist it must be eliminated. Actually there are 100,000 members of the U. M. W. of A. who have suffered a reduction in their working time because of the growth of bootlegging. These men are the real back-bone of the Anthracite region.

Miner: I heard the other day that you said the operators in this district could not long continue in business unless bootlegging is stopped. Why?

M. F. Brennan: Legitimate coal operators must pay union wages, compensation insurance, social security and unemployment insurance, taxes, maintenance expenses, and look after the safety of their employees. Operators cannot continue to compete with those who do not pay the above items, and still maintain the high standards which you now enjoy.

Miner: What can I do to help put the plan across and protect my job?

M. F. Brennan: Study this folder until you are familiar with the plan, and then tell all your friends exactly what the plan means to the industry, the community, and yourself.

The final report on total and partial unemployment in Pennsylvania as garnered from the 1937 census, conducted under the direction of John D. Biggers, contains some interesting figures. The 1930 census showed 9.361,350 population for the state. The 1937 census showed that 568,214 persons were classed as totally unemployed; 301,087 partly unemployed and 184.311 "emergency workers"—those on WPA, NYA, CCC or other emergency work. Of the totally unemployed in the state 415,164 are men and 153,050 women. In the coal mining industry of Pennsylvania the census found that 36,799 persons were totally unemployed, 45,439 are partly unemployed while 16,147 are listed as emergency workers.

Schuylkill county census figures revealed 21,002 totally unemployed, including 16,297 men and 4,705 women. The survey revealed 8,772 emergency workers and 6,340 partly unemployed. Of the total unemployed in the county 607 were found to be living on farms, which also held 266 partly unemployed. The 1930 census gave the county a population of 235,505, including 583 colored.

Pottsville's totally unemployed were numbered at 1,889, including 1431 men and 458 women. Seventy-eight negroes were among those without work. Pottsville was credited with 1,142 emergency workers including 949 men and 143 women. Pottsville also counted 615 partly unemployed inhabitants, with 479 of them men and 136 women.

* * * * *

Of Pottsville's 1889 totally unemployed, 268 were aged between 15 and 19; 331 between 20 and 24; 338 between 25 to 34; 348 between 35 to 44; 272 between 45 to 54; 234 between 55 to 64; 91 between 65 and 74. Likewise in the emergency grouping and the partly unemployed, the greatest number were in the 20 to 55 age limit.

Of the county's 21,002 unable to find work of any kind, 4,141 were between 15 and 19 years old; 4,635 between 20 to 24; 3,815 between 25 to 34; 2,737 between 35 to 44; 2,840 between 45 to 54; 1,984 between 55 to 64 and 712 between 65 to 74.

* * * * *

In listing the class of people out of work entirely in Pottsville the census showed that the bulk were in the laboring class—545. Only 27 of the idle were listed in the professional class. Skilled workers without jobs here numbered 227 and semi-skilled 251. Taking in the county there were 310 professional people without jobs. The majority of idle are in the laboring, skilled and semi-skilled ranks, the census shows.

* * * * *